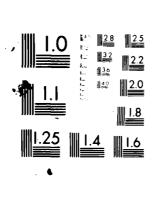
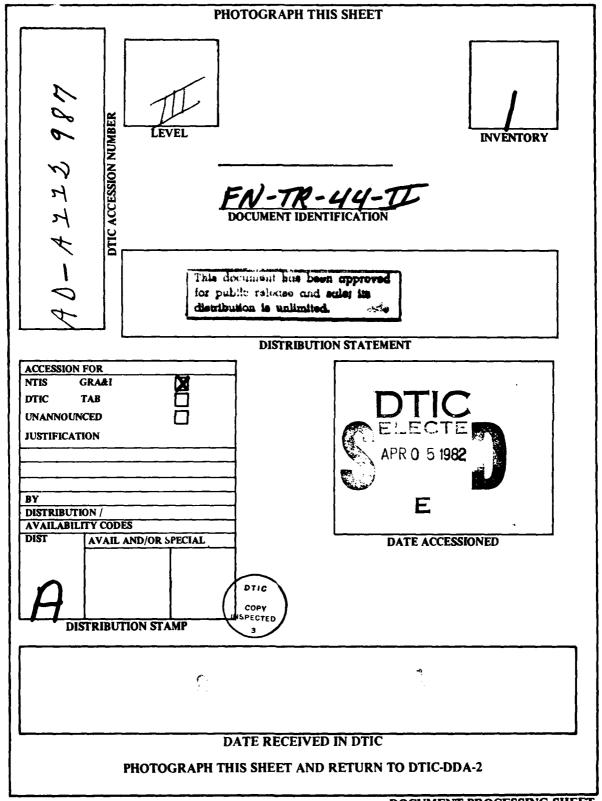
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# MX SITING INVESTIGATION GEOTECHNICAL EVALUATION

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# PRELIMINARY GEOTECHNICAL INVESTIGATION PROPOSED OPERATIONAL BASE SITE MILFORD, UTAH

VOLUME II - GEOTECHNICAL DATA

PREPARED FOR BALLISTIC MISSILE OFFICE (BMO) NORTON AIR FORCE BASE, CALIFORNIA



# MX SITING INVESTIGATION GEOTECHNICAL EVALUATION

PRELIMINARY GEOTECHNICAL INVESTIGATION PROPOSED OPERATIONAL BASE SITE MILFORD, UTAH

VOLUME II - GEOTECHNICAL DATA

#### Prepared for:

U.S. Department of the Air Force Ballistic Missile Office Norton Air Force Base, California 92409

Prepared by:

Fugro National, Inc. 3777 Long Beach Boulevard Long Beach, California 90807



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#### **FOREWORD**

This volume of geotechnical data was compiled for the Department of the Air Force, Ballistic Missile Office (BMO), in compliance with Contract No. F04704-80-C-0006, CDRL Item 004A6. It contains the field data and laboratory test results from the investigation of the proposed Operational Base Site, Milford, Utah. A synthesis of these data is available in Volume I.

The data in each section of this volume are preceded by an explanation of the format and terms used in the compilation.

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#### SECTION 2.0

EXPLANATION OF BORING, TRENCH, AND TEST PIT LOGS

#### 2.0 EXPLANATIONS OF BORING, TRENCH, AND TEST PIT LOGS

All data from borings, trenches, and test pits are presented on standard Fugro National logs in Sections 2.0, 3.0, and 4.0. Explanations of the column headings on the logs are as follows:

A. Designations - Borings, trenches, and test pits are identified as follows:

MD-B-1 or BL-B-1

1

MD or BL - abbreviation for the site (e.g., MD-Milford and BL-Berv1)

B - abbreviation for activity (e.g., B-boring,

T-trench, P-test pit)
- number of activity

All of the engineering activities for Option 1 OBTS are designated by BL (e.g., Beryl).

- B. Sample Type Different sampling techniques were used and the symbols are explained at the bottom of the boring logs. For details of sampling techniques, see Section A4.0 of Appendix in Volume I. Horizontal lines, to scale, indicate the depth where sampling was attempted.
- C. Percent Recovery The numbers shown represent the ratio (in percent) of the soil sample recovered in the sampler to the full penetration of the sampler.
- D. N Value Corresponds to standard penetration resistance which is the number of blows required to drive a standard split-spoon sampler for the second and third of three 6-inch (15-cm) increments with a 140-pound (63.5-kg) hammer falling 30 inches (76 cm) (ASTM D 1586-67).

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- E. Depth Corresponds to depth below ground surface in meters and feet.
- F. Lithology Graphic representation of the soil and rock types.
- G. USCS Unified Soil Classification System symbols (see Table II-2-1 for complete details).
- H. Soil Description Except in cases where samples were classified based on laboratory test data, the descriptions are based on visual classification. The procedures outlined in ASTM D 2487-69, Classification of Soils for Engineering Purposes, and D 2488-69, Description of Soils (Visual-Manual Procedure), were followed. Solid lines across the column indicate known change in strata at the depth shown.

Definitions of some of the terms and criteria to describe soils and conditions encountered during the exploration follow.

Gradation: A coarse-grained soil is well graded if it has a wide range in grain size and substantial amounts of most intermediate particle sizes.

Poorly graded indicates that the soil consists predominantly of one size (uniformly graded) or has a wide range of sizes with some intermediate sizes obviously missing (gap-graded).

Moisture: Dry - no feel of moisture

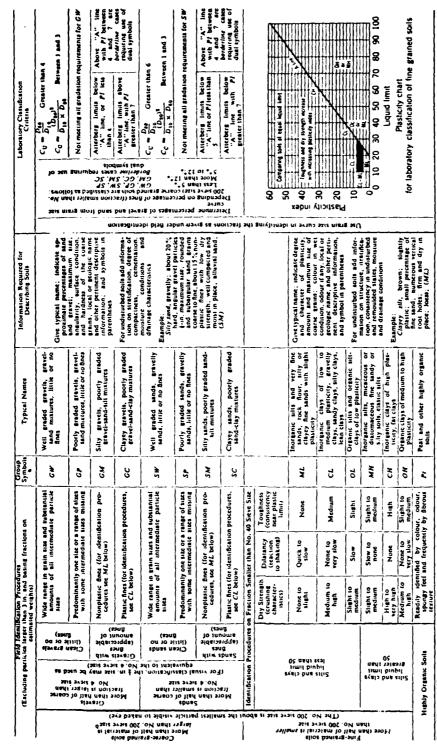
Slightly Moist - much less than normal moisture

Moist - normal moisture for soil Very Moist - much greater than normal

moisture

Wet - for soils below the water

table



From Wagner, 1977.

\*\*Boundary Laufhalland.

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Field Identification Consistency of the Chained Soils or Fractions on the characteristics, percentage and on the characteristics, percentage and the case percentage and the coarse particles approximately fig. in "Characteristics" of the consistency of party, and the coarse particles and consistency of party is additionable and consistency of party in the part of which are the part of which and shake horizontally surking between the finance in the part of the party of the p

UNFIED SOIL CLASSIFICATION SYSTEM OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMO

TABLE II-2-1 Consistency: Consistency descriptions of coarse-grained soils (GW, GP, GM, GC, SW, SP, SM, SC) are as follows.

Consistency	N Value (ASTM D 1586-67)
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	>50

Consistency descriptions of fine-grained soils (ML, CL, MH, CH,) are as follows:

Consistency		Strength (kN/m <sup>2</sup> )	Field Guide
Very Soft	0.25	12	Sample with height equal to twice the diam-eter, sags under own weight
Soft	0.25- 0.50	12 - 24	Can be squeezed between thumb and forefinger
Firm	0.50- 1.00	24- 48	Can be molded easily with fingers
Stiff	1.00-2.00	48- 96	Can be imprinted with slight pres- sure from fingers
Very Stiff	2.00- 4.00	96- 192	Can be imprinted with considerable pressure from fingers
Hard	over 4.00	over 192	Cannot be im- printed by fingers
<b>3 3</b>		1	abana adasa and

Grain Shape: Angular - particles have sharp edges and relatively plane sides with unpolished surfaces.

Plasticity: Plasticity index is the range of water content, expressed as a percentage of the weight of the oven-dried soil, through which the soil

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is plastic. It is defined as the liquid limit minus the plastic limit. Descriptive ranges used on the logs include:

Nonplastic (PI, 0-4) Slightly Plastic (PI, 4-15) Medium Plastic (PI, 15-30) Highly Plastic (PI, >30)

Cobbles and Boulders

A cobble is a rock fragment, usually rounded by weathering or abrasion, with an average diameter ranging between 3 and 12 inches (8 and 30 cm).

A boulder is a rock fragment, usually rounded by weathering or abrasion, with an average diameter of 12 inches (30 cm) or more.

- I. Remarks This column was provided on boring and trench logs for comments regarding drilling difficulty, number and size of cobbles or boulders encountered, loss of drilling fluid in the boring, trench wall stability, and other conditions encountered during drilling and excavations.
- J. Dry Density and Moisture Content The boring logs include a graphical display of laboratory test results for dry density (ASTM D 2937-71) in pounds per cubic foot and kilograms per cubic meter and moisture content (ASTM D 2216-71) in percent from representative samples taken during drilling. The symbols are explained at the bottom of the boring logs.
- K. Sieve Analysis The numbers represent the percentage by dry weight (ASTM D 422-63) of each of the following soil components:
  - •GR Gravel, rock particles that will pass a 3-inch (76-mm) sieve and are retained on No. 4 (4.75 mm) sieve.

focas navionas, min.

- SA Sand, soil particles passing No. 4 sieve and retained on No. 200 (0.075 mm) sieve.
- FI Fines, silt or clay, soil particles passing No. 200 sieve.

#### L. Atterberg Limits (LL and PI) -

- LL Liquid Limit, the water content corresponding to the arbitrary limit between the liquid and plastic states of consistency of a soil (ASTM D 423-66).
- PL Plastic Limit, the water content corresponding to an arbitrary limit between the plastic and the semisolid state of consistency of a soil (ASTM D 424-59).
- PI Plasticity Index, numerical difference between the liquid limit (LL) and the plastic limit (PL) indicating the range of moisture content within which a soilwater mixture is plastic.

NP - Nonplastic.

#### M. Miscellaneous Information -

Elevations - indicated elevations on the logs are estimated from topographic maps of the study area, within an accuracy of half the contour interval.

Surficial

Geologic Unit - indicates the surficial geologic unit in which the activity is located.

Date Drilled - indicates the period from beginning to completion of the activity.

Drilling

Method - signifies the type of drilling procedure used such as rotary wash.

Hole Diameter - nominal size of boring drilled.

Water Level - indicates depth from ground surface to water table where encountered.

Trench Length - length at ground surface of final trench excavation.

Trench

Orientation - bearing of longitudinal trench centerline.

TUGRO MATIONAL, INC.

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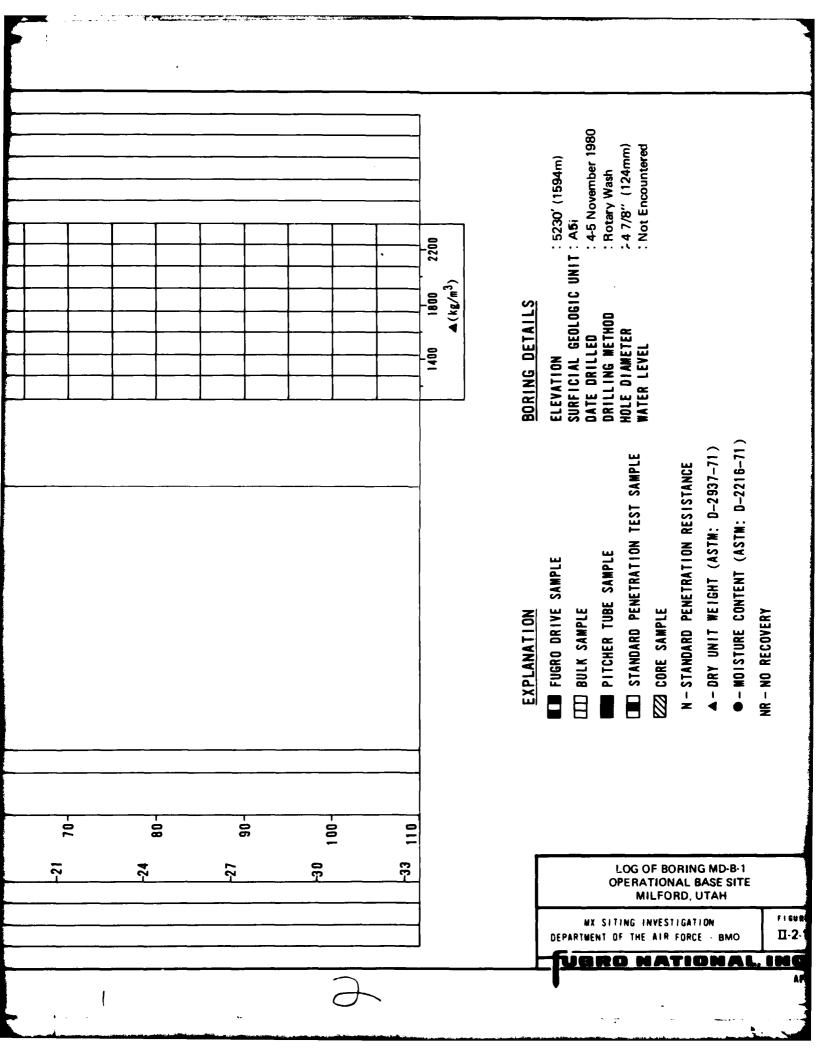
SAMPLE

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\* RECOVERY

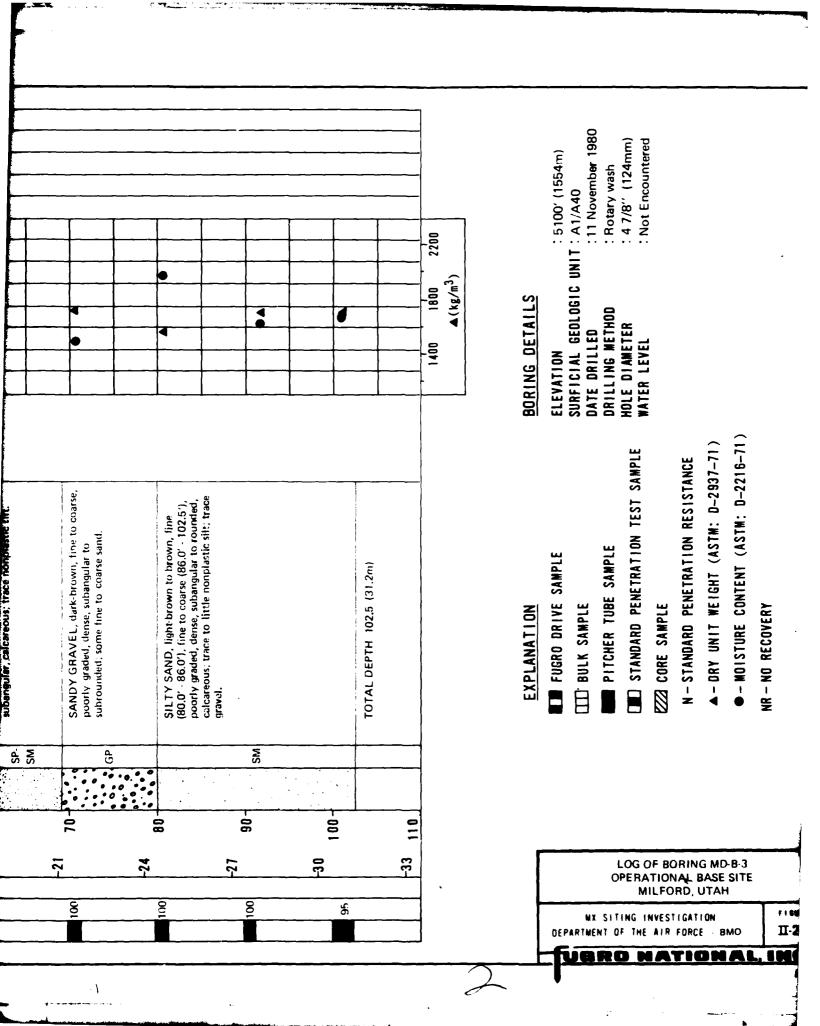


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	SOIL DESCRIPTION	GRAVELLY SAND, light-brown to brown, fine to coarse, poorly graded, loose to dense, subangular to subrounded, calcareous; little to	some fine gravel; little slightly plastic silt. SILTY SAND - CLAYEY SAND, light-brown,	tine to coarse, poorly graded, medium dense, subangular to subrounded, calcareous; some slightly plastic sitr-clay; some fine gravel.	Interbedded layers of GRAVELLY SAND and SILTY SAND: GRAVELLY SAND (SP, SW-SM): brown, fine	subangular to subrounded, calcareous; trace to some fine to coarse gravel; trace nonplastic silt.	SILTY SAND (SM): brown, fine to coarse, poorly graded, medium dense to dense, subangular to subrounded, calcareous; little to some slightly plastic silt: trace fine to	coarse gravel.				TOTAL DEPTH 51.0' (15.5m)		
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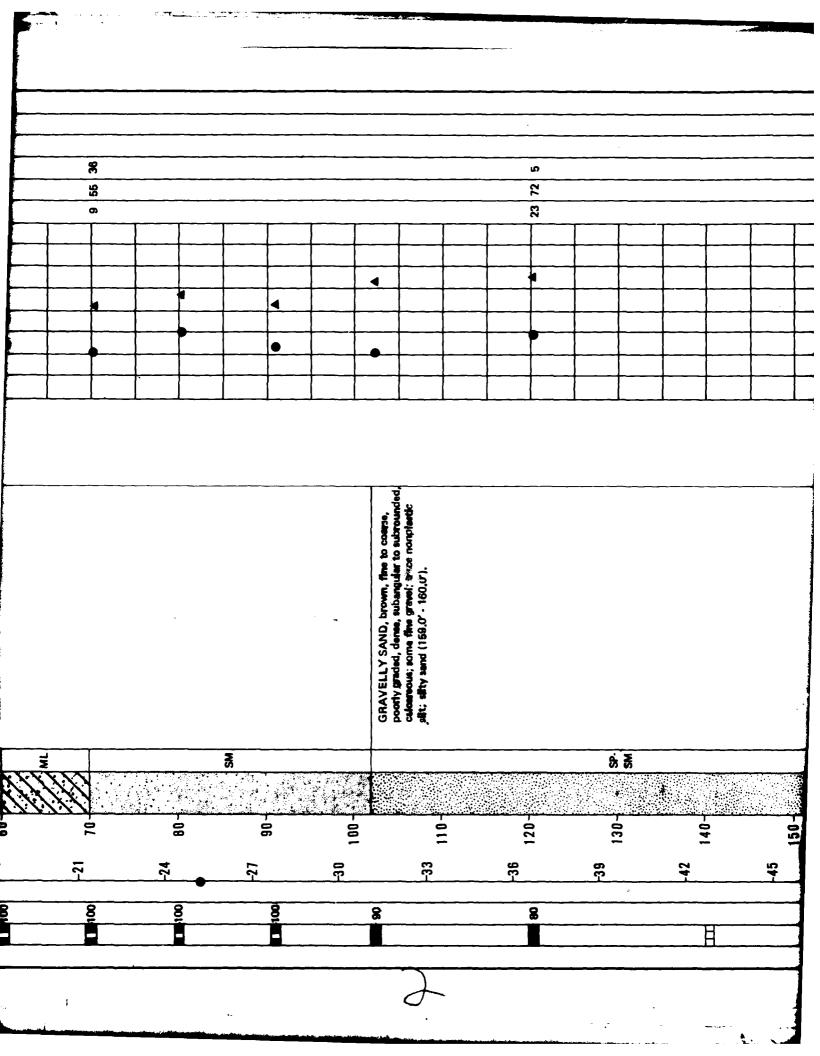
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							BORING DETAILS	ELEVATION	SURFICIAL GEO	DRILLING METHOD	HOLE DIAMETER Water i fvri	•					
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											STANDARD PENETRATION TEST SAMPLE		ISTANCE	UNIT WEIGHT (ASTM: D-2937-71)	STURE CONTENT (ASTM: D-2216-71)		
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								FUGRO DRIVE SAMPLE		SAMP	NETRAT		NETRAT	IGHT (	NTENT		
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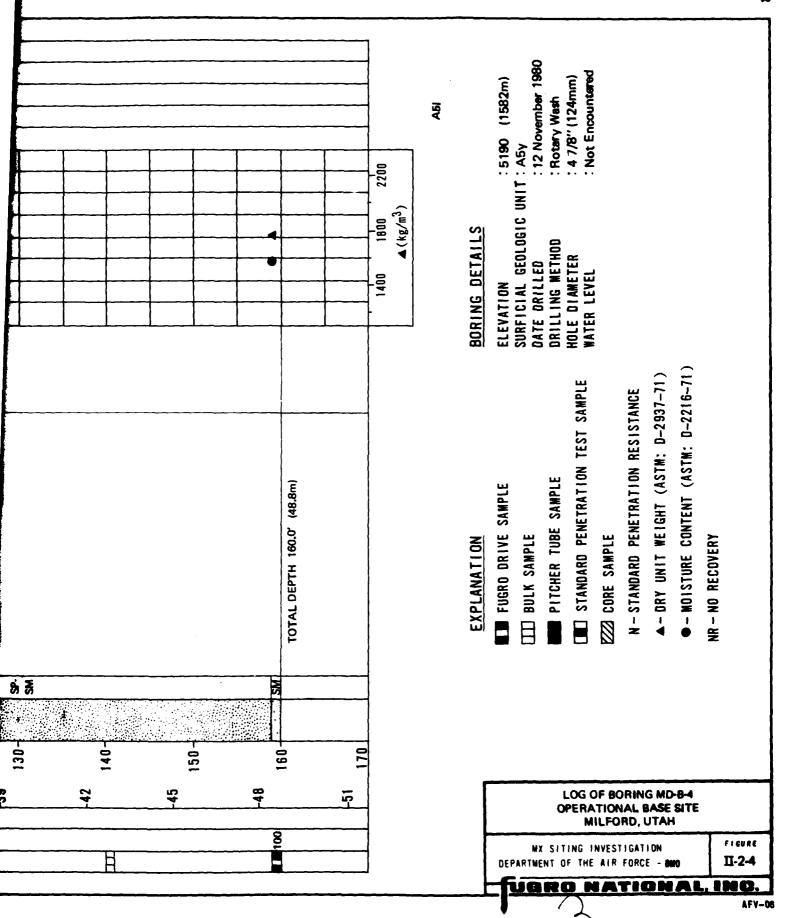
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1 25 12 12 12 12 12 12 12 12 12 12 12 12 12	) (6 19	0	0		CH	CLAY, dark-brown, soft to stiff, medium plastic, calcareous.	,	57.3	8	•				0	<u>-</u>	66	50
67			<del>1</del>		Σ	CLAYEY SILT, brown, stiff, medium plastic, calcareous.		1			2_				ო	97	61
2 8		m -	<u></u>	mali di seriminana di serimina di seriminana di seriminana di serimina d	3	CLAY, brown, stiff, medium plastic, calcareous.					•	•		1		66	26
100	-		707			SILTY SAND, brown to dark brown, fine to medium, poorly graded, dense, subangular to subrounded, calcareous; some nonplastic silt.			<b> </b>				1	, T		38	
93			<u> </u>		SM					-			+				
83		رب ص	30												67	2533	
93					₹ ¥	CLAYEY SILT, SANDY SILT and SANDY CLAY, light-brown to brown, stiff, slightly to medium plastic calcarents, trace to			4	-	•		•			95	46
91		, ,	<b>5</b> <del>}</del>			some fine subangular to subrounded sand.				4	-		-	Τ			31
<u>8</u>			<u> </u>		ರ				<del>                                     </del>				-	<del>^</del>	46	54	34
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6			} > o		g,	SAND, brown, fine, poorly graded, dense, subangular, calcareous, trace nonplastic silt.			<del> </del>		40		-	<u> </u>	88	12	

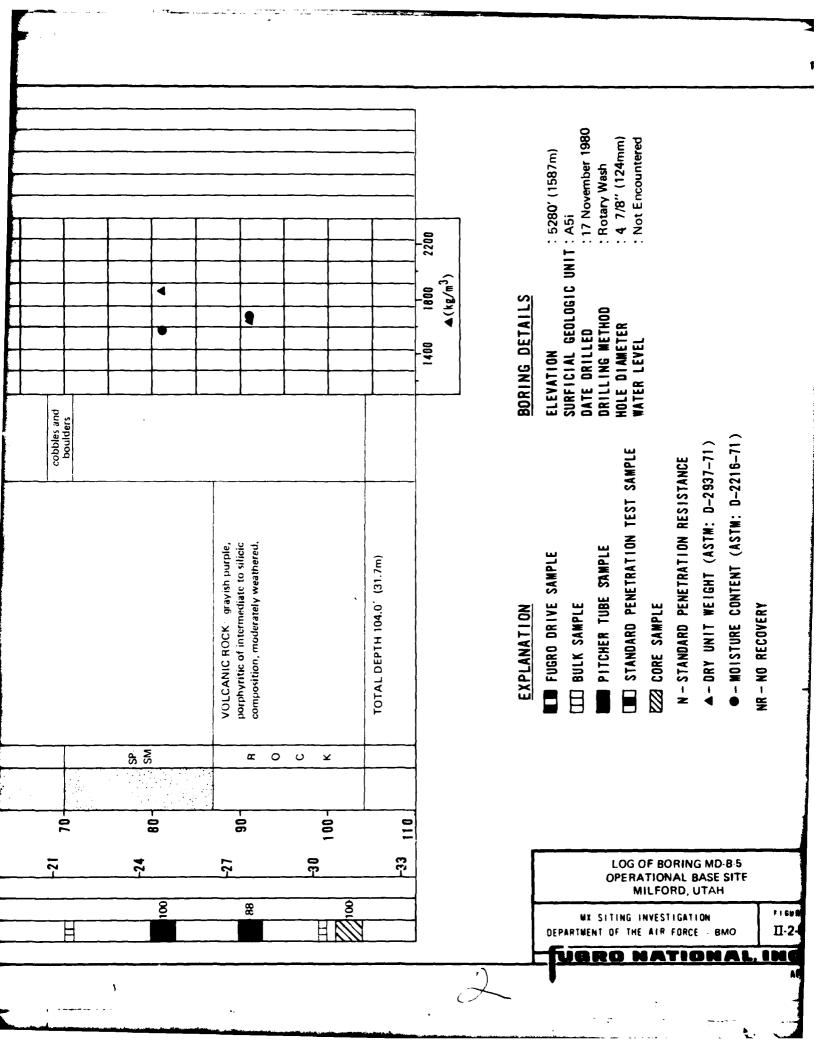


SOIL DESCRIPTION  REMARKS  80 90 100 10 120 130 140 ANALYSIS  SILTY SAND, Right-frown to brown, fine to ceases, possety graded, lose as deses, subangular to an eligibity plantic sits and standard subangular to authorize subangular to an eligibity plantic subangular to course grantic subangular to an eligibity plantic subangular to course alternative subangular to authorize subangular to a subangular to authorize suba	{	=					ž					ž		
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PIL DESCRIPTION  REMARKS  80 90 100 110 120 130 140  (2)  NUD. light-brown to brown, fine to early graded, loose to deems, subangular while to course grand; gravelly sand fine to course grand; gravelly sand fine to course grand; gravelly pleated.  NUD. (SM): brown, dame, subangular to early gravel  NUD. (SM): brown, dame, nonpleated.  Sit T (ML): brown, dame, nonpleated.	YSIS								<del></del>					<del></del>
PIL DESCRIPTION  REMARKS  80 90 100 110 120 130 140  (2)  NUD. light-brown to brown, fine to early graded, loose to deems, subangular while to course grand; gravelly sand fine to course grand; gravelly sand fine to course grand; gravelly pleated.  NUD. (SM): brown, dame, subangular to early gravel  NUD. (SM): brown, dame, nonpleated.  Sit T (ML): brown, dame, nonpleated.	SIE							···_						
NIL DESCRIPTION REMARKS 80 90 ND, light-brown to brown, fine to saidy graded, loces to dense subangular and ded, galcareous; some stightly plastic fine to course gravel; gravelly sand of SILTY SAND NV SIM1; NV SM1; brown, fine to coerse, alternated as subangular to some none-to stightly plastic, si some fine to coerse subangular to ed sand; trace fine gravel.		5		1	<del></del>	T	7~	<del></del>		<del>-</del> -	$\overline{}$			
NIL DESCRIPTION REMARKS 80 90 ND, light-brown to brown, fine to saidy graded, loces to dense subangular and ded, galcareous; some stightly plastic fine to course gravel; gravelly sand of SILTY SAND NV SIM1; NV SM1; brown, fine to coerse, alternated as subangular to some none-to stightly plastic, si some fine to coerse subangular to ed sand; trace fine gravel.	1 5			<del> </del>	+	+	+	+		<del></del>				
NIL DESCRIPTION REMARKS 80 90 ND, light-brown to brown, fine to saidy graded, loces to dense subangular and ded, galcareous; some stightly plastic fine to course gravel; gravelly sand of SILTY SAND NV SIM1; NV SM1; brown, fine to coerse, alternated as subangular to some none-to stightly plastic, si some fine to coerse subangular to ed sand; trace fine gravel.				<del> </del>		+	<del> </del>	+-			_	+	_	
NIL DESCRIPTION REMARKS 80 90 ND, light-brown to brown, fine to saidy graded, loces to dense subangular and ded, galcareous; some stightly plastic fine to course gravel; gravelly sand of SILTY SAND NV SIM1; NV SM1; brown, fine to coerse, alternated as subangular to some none-to stightly plastic, si some fine to coerse subangular to ed sand; trace fine gravel.	(£ 22 +			<u> </u>	<del> </del>	†	<del> </del>	+-					1	_
NIL DESCRIPTION REMARKS 80 90 ND, light-brown to brown, fine to saidy graded, loces to dense subangular and ded, galcareous; some stightly plastic fine to course gravel; gravelly sand of SILTY SAND NV SIM1; NV SM1; brown, fine to coerse, alternated as subangular to some none-to stightly plastic, si some fine to coerse subangular to ed sand; trace fine gravel.	<b>₹</b>			4		4	<del> </del>	+	4			4		_
SIL DESCRIPTION REMARKS 80  MD, Hight-brown to brown, fine to sety graded, loose to dense, subangular unided, galcarroun; some signity plastic files to-coarse gravel; gravelly sand of SILT?  MD (SM): brown, fine to acerse, and sand, dense, subangular to subrounded sides to some non-set signification of sides to coarse gravel; sandy gravel A.O.).  SILT (ML): brown, dense, nonplastic, sistem the to coarse gravel; sandy gravel A.O.).  sistem the to coarse subangular to ed sand; trace fine gravel.		10	4	1	•	<b>†</b>	1	+-				-		_
ND. Hight-brown to brown, fine to seeky graded, loose to dente, subangular united, galcareous; some affahity plastic fine to-coars gravel; graveliy sand.  ND SILT:  ND SILT:  ND SILT:  SILT:  ND SILT:  SILT:  SINGle to coars gravel; sandy gravel  Siltile to coars gravel; sandy gravel  Siltile to coars gravel; sandy gravel  NO!:  Siltile to coars gravel; sandy gravel  NO!:  Siltile to coars gravel; sandy gravel  Siltile to coars gravel; sandy gravel  AO!  Siltile to coars gravel; sandy gravel  AO!  Siltile to coars gravel;  Siltile to coars gravel.	1 1	i	4	-	4		1	•			•		•	
ND, Hort-brown to brown, fine to series graded, bose to dense, subangular unded, galcareous; some stightly plastic fine to coarse gravel; gravelly sand fine to coarse gravel; gravelly sand fine to coarse gravel; sandy gravel and dense, subangular to sebrounded, siffair to some morte stightly plastic, fine to coarse gravel; sandy gravel (fine to coarse gravel; sandy gravel) (fine to coarse gravel; sandy gravel) (fine to coarse gravel; sandy gravel) (fine to coarse subangular to ed sand; trace fine gravel.	8				1	1	1							
	SOIL DESCRIPTION		TY SAND, fight-brown to bron rie, possty graded, lose to den ubbounded, calcarous: some s	trace fine to coarse gravel; gr:		shoulded layers of SILTY SANISANDY SILT:	TY SAND (SM): brown, the a sty graded, dense, subengular a streous; (Male to some non-to si treous fleats, course present; say	o' - 60.0').	NDY SILT (ML): brown, demaisareous, some time to course surrounded sand; trace fine gravel.					
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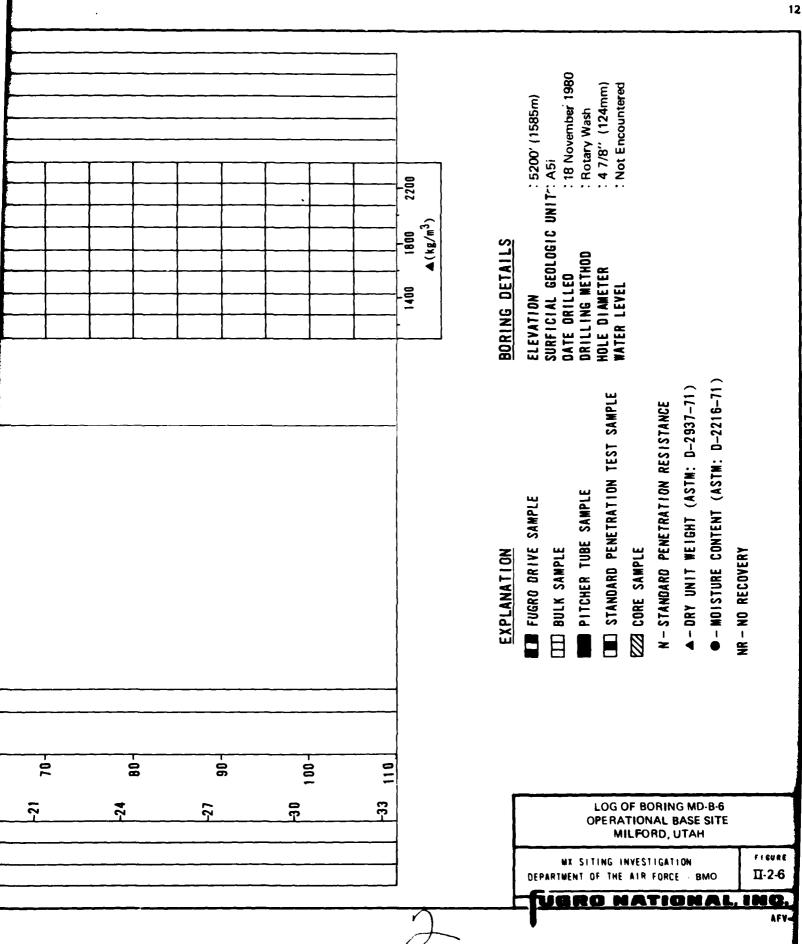




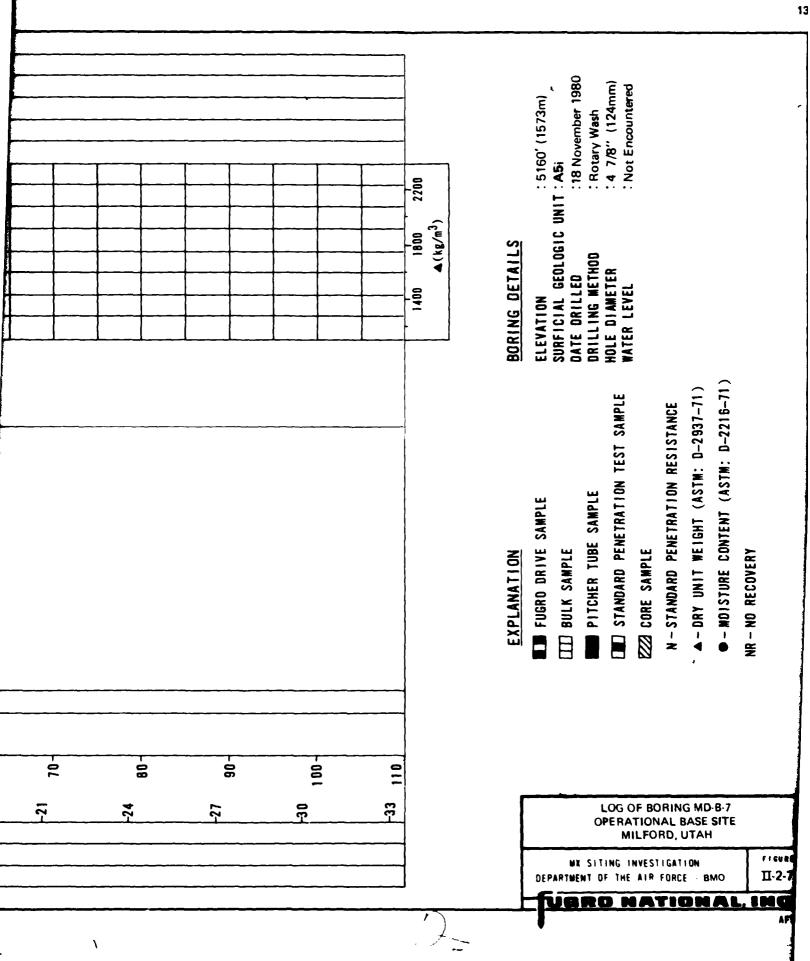
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	SOIL DESCRIPTION RE	Interbedded fayers of GRAVELLY SAND and SILTY SAND:	brown to dark-brown, fine to coarse, well-to poorly graded, dense to very dense, subangular to subrounded, calcareous; little to some fine to	coarse gravel; trace non-to slightly plastic silt.	SILTY SAND (SM): light-brown to dark-brown, fine to coarse, poorly graded, dense to very dense, subangular to subrounded, calcarcous; liftle to some non-to slightly plastic silt; trace protect.	·									
	REMARKS											poulder			
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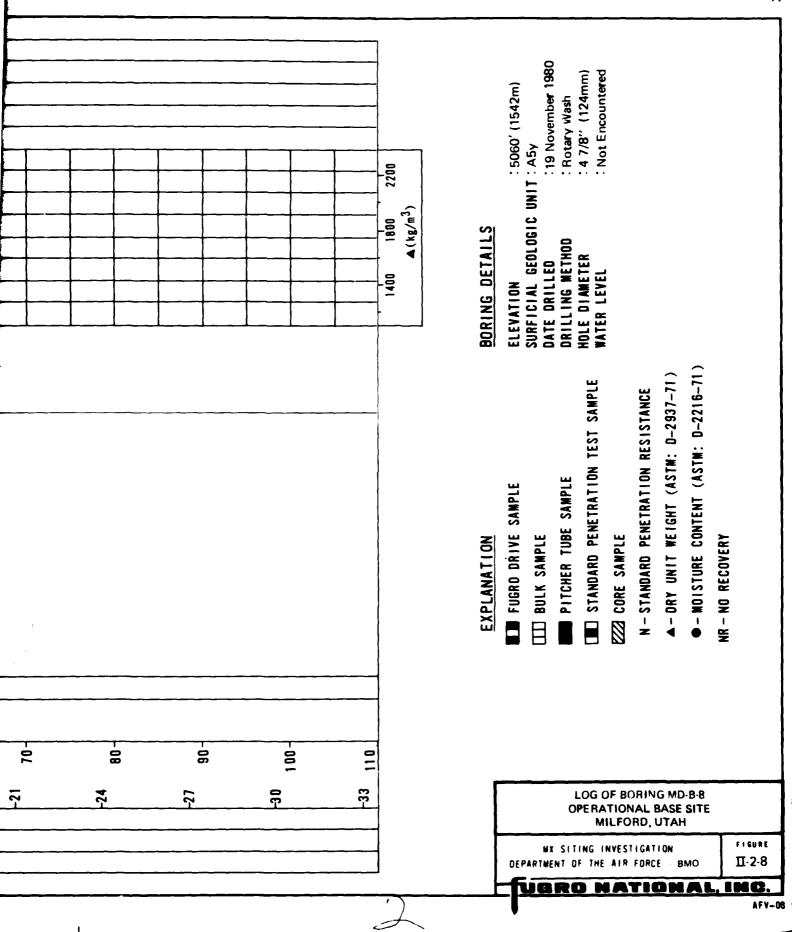
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REMARKS		<u>.</u>							_						 	
SOIL DESCRIPTION		Interbedded layers of GRAVELLY SAND and SANDY SILT: GRAVELLY SAND (SW-SM, SP-SM, SM): Jight	brown to brown, fine to coarse, well-to poorly graded, loose to very dense, subangular to subrounded, calcareous; little to some fine to	coarse gravel; trace to little non-to slightly plastic silt; silty sand (0,0' - 2,5').	SANDY SILT (ML): brown, stiff, slightly plastic, calcareous, some fine to medium sand,									TOTAL DEPTH 50.0'(15.2m)		
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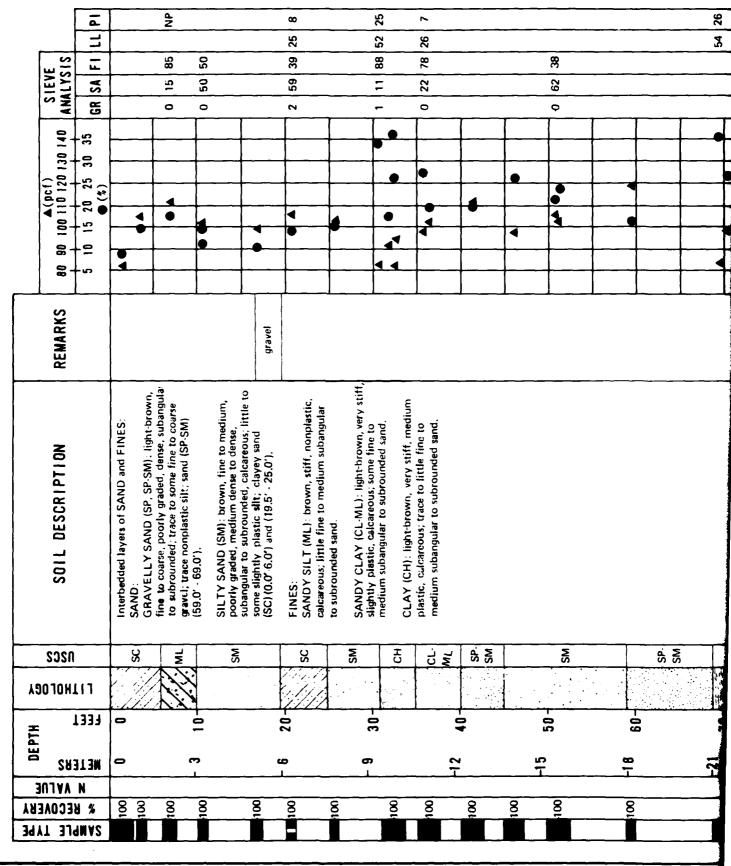


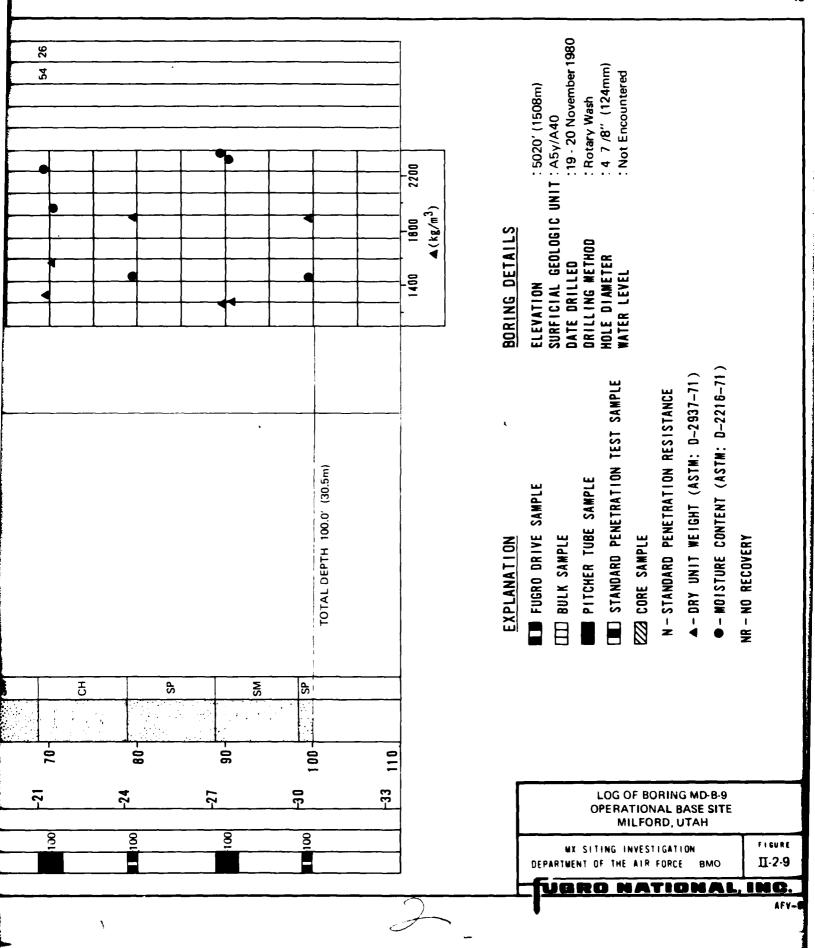
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REMARKS		<b>4</b>				cementation throughout							<b>&gt;</b>		
SOIL DESCRIPTION		Interbedded layers of SANDY GRAVEL and CLAYEY SAND:	SANDY GRAVEL (GP): light-brown, fine to coarse, poorly graded, dense, subangular to	subrounded, calcareous; some fine to coarse sand.	CLAYEY SAND (SC): dark-to light brown, fine to coarse, poorly graded, loose to dense,	subarigular to subformed, valcaledus, some slightly plastic clay; some fine gravel.		GRAVELLY SAND, brown, fine to coarse, well-to pooily graded, dense, subangular to subtrounded calcardons some fine to coarse	gravel; trace non-to slightly plastic silt.				TOTAL DEPTH 51.0' (15.5m)		
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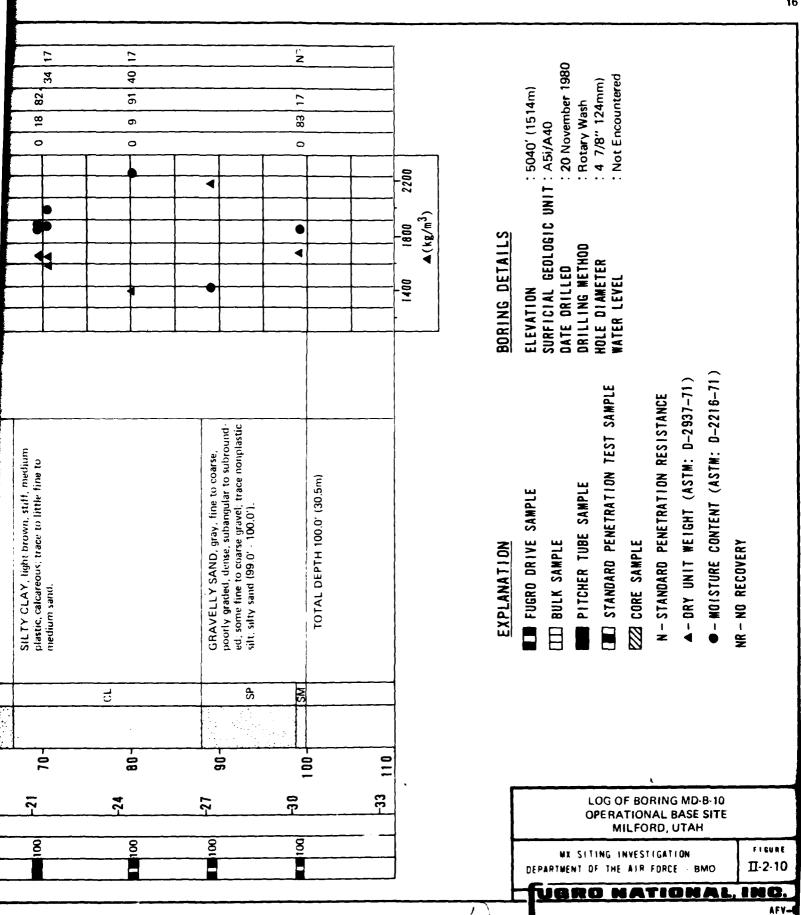
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REMARKS		<b>4</b>	cementation											<del></del>	
SOIL DESCRIPTION		GRAVELLY SAND, light-brown to brown, fine to coarse, poorly graded, loose to very dense, subangular to subrounded, calcareous;	·	·							······	TOTAL DEPTH 51.5' (15.7m)			
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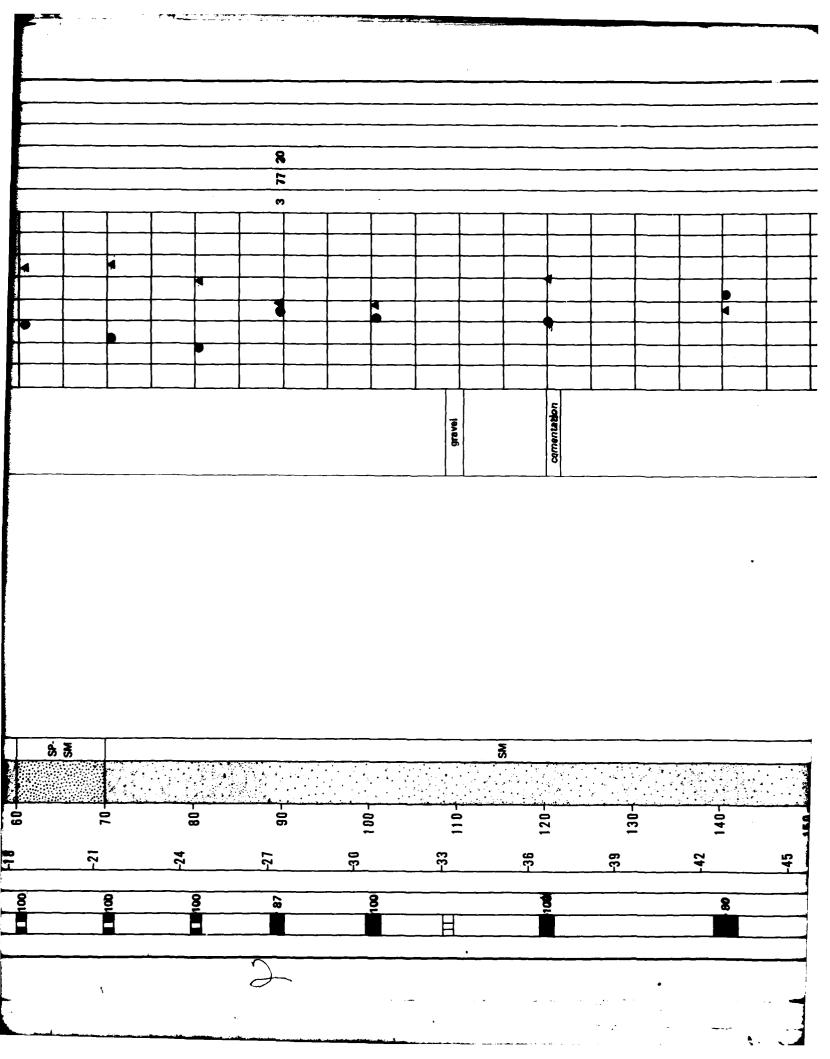


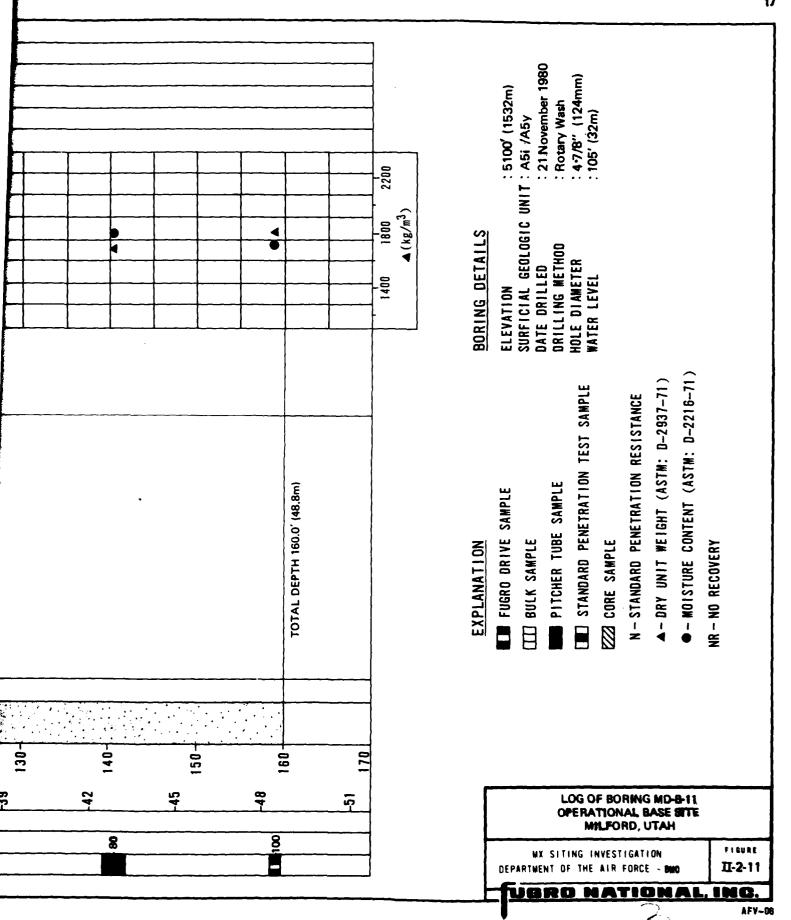


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SOIL DESCRIPTION		Interbedded layers of GRAVELLY SAND and SILTY SAND. GRAVELLY SAND (SW.SM, SP-SM): brown	to dark-brown. fine to coarse, well-to poorly graded, dense, subangular to subrounded, calcareous, some fine to coarse gravel. trace	nonplastic silt; sandy gravel (15.0' 20.0').	SILTY SAND (SM): light-brown to dark- brown, fine to coarse, poorly graded, loose to dense, subangular to subrounded, calcareous,	gravel, clayey sand (39.0° - 43.0°).				SANDY SILT, brown, stiff, slightly plastic, calcareous, some fine subangular to subrounded sand.	SILTY SAND, dark brown to gray, fine to medium, poorly graded, dense, subangular to subrounded, some non-to slightly plastic silt, alternating layers of silty clay and silty sand (60.0° 60.0°), sand (60.0° 67.0°).		
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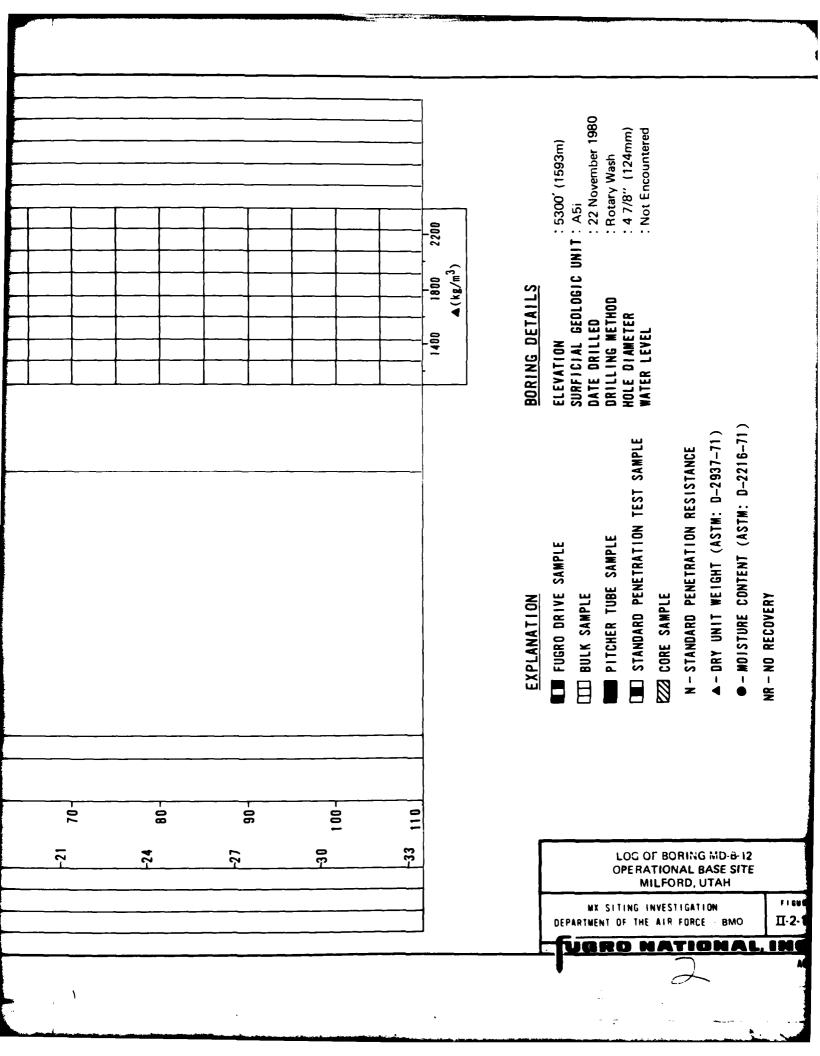


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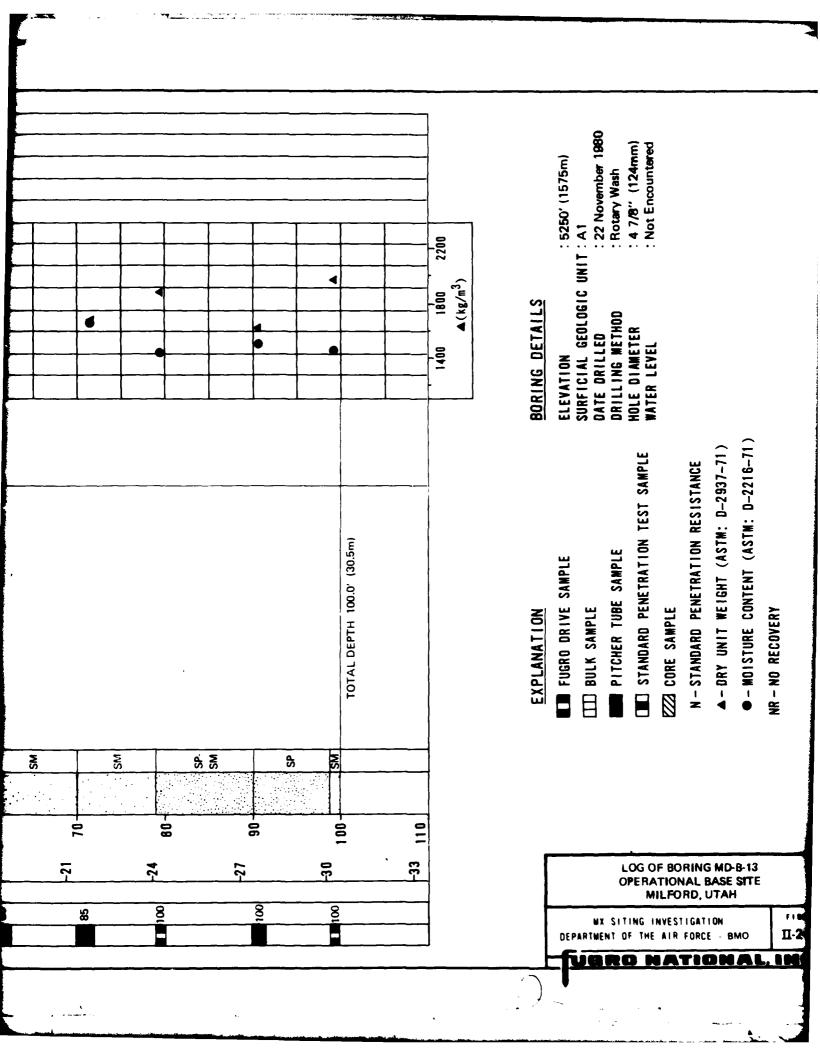




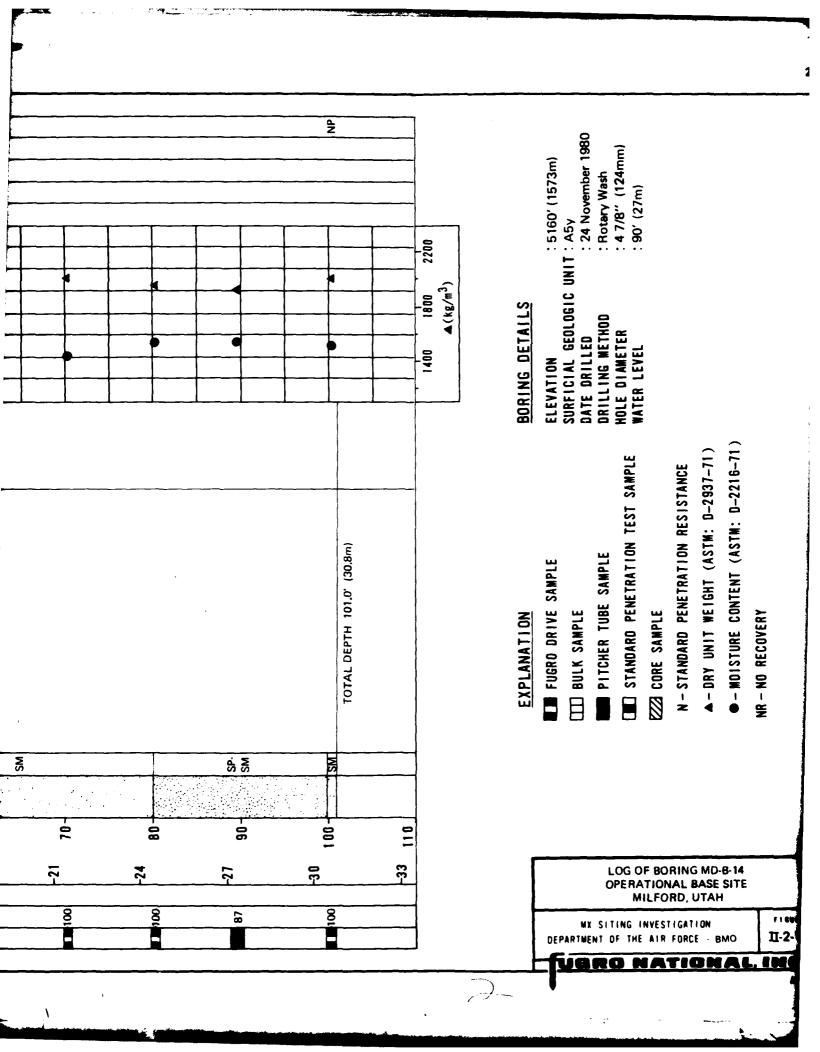
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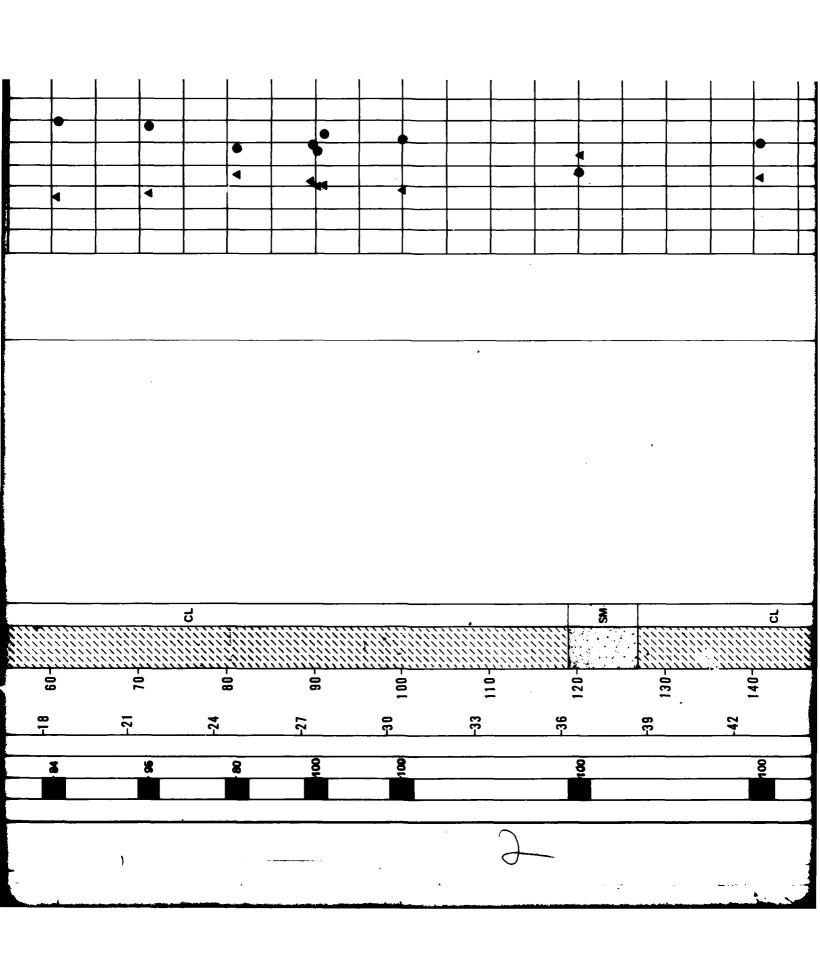
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SOIL DESCRIPTION		Alternating layers of GRAVELLY SAND and		GRAVELLY SAND (SP, SW-SM, SP-SM, SM): light-brown to dark-brown, fine to coarse, well- to poorly graded, dense, subangular to	subrounded calcareous; little to some fine to coarse gravel; trace to little non-to slightly plastic silt.	SILTY SAND:(SM) (0.0'-3.0', 10.0'-15.0', 38.0'-43.0',49.0'-60.0',70.0'-79.0', 99.0'-100.0'); light-brown for dark-brown files to coarse	substance of the second substa								
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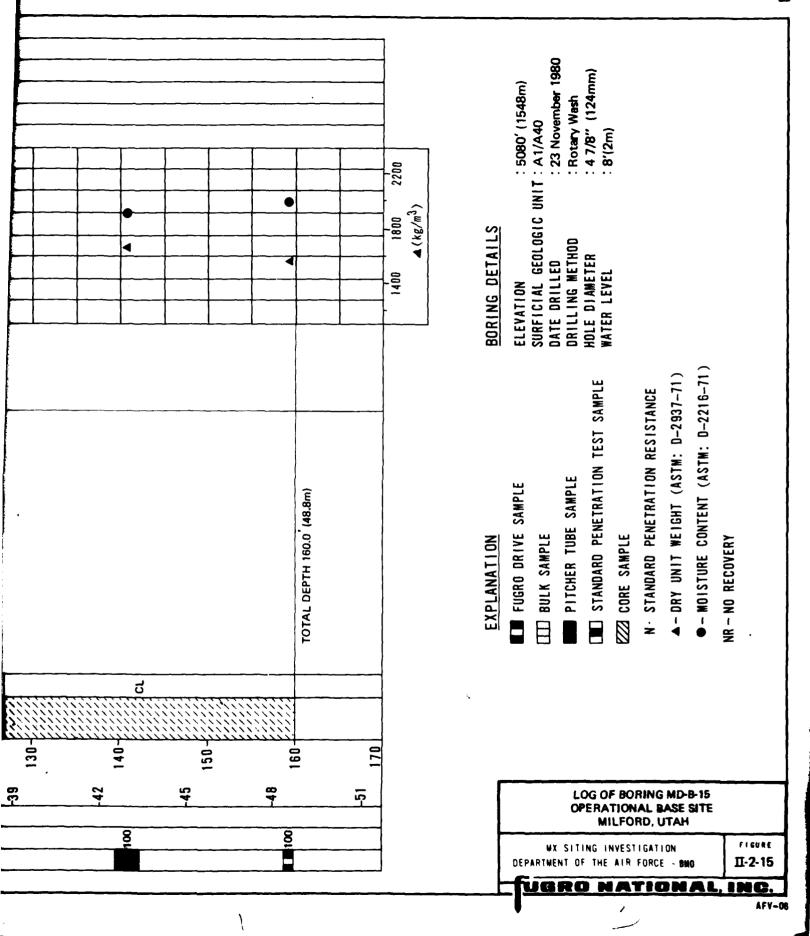


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-		AND			n, fi	50		(SP-SM): red-brown, fine to coarse,	i Sign	e to	g S	50.50	`. `.		SANDY SILTY (ML): red-brown, stiff no obstices one fine to coarse subangular to		SANDY CLAY (CL): orange-brown, stiff slightly plastic, calcareous, some fine to	ja G				•			
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SOIL DESCRIPTION		ayer			AVE.	subrounded, calcareous; so sand; little nonplastic silt.		 S	brou	S)	Ď.	20 C	. 5 . e⁄		T ≤	subrounded sand; trace fine gravel.	∑ 5	coarse subangular to subrounded sand.							;
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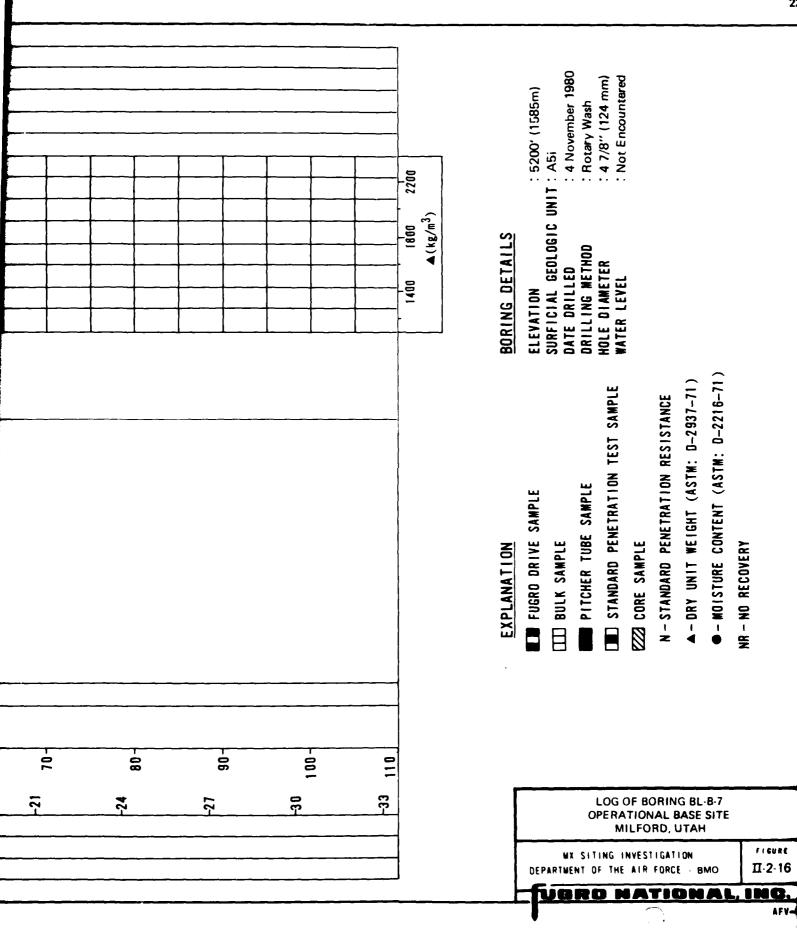


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SOIL DESCI		CH Imerbedded layers of SA SAND:	SM subrounded, de sensors : uro cogre, poorfy graded, de subrounded, de sensors : un transfer : un t	FINES: CLAYEY SILT (ML): If	medium plactic, calcansor	MIL SILTY CLAY (CL): Highir medium plastic, calcareo		35						
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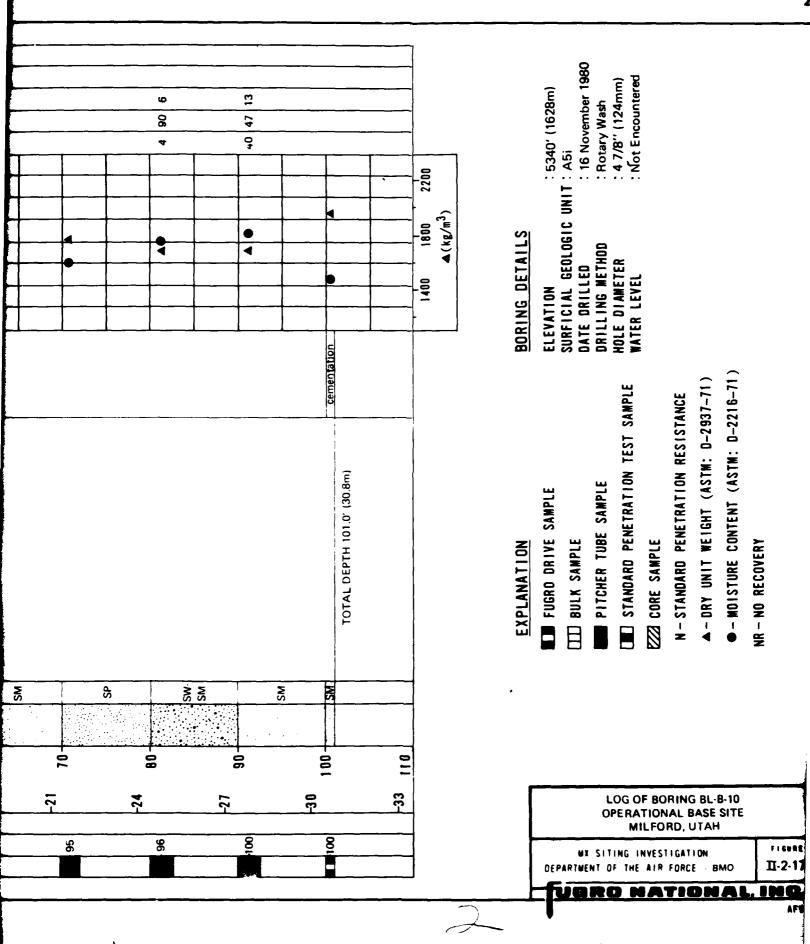




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0.6	-22									1						
REMARKS					<u></u> -		ę.									
SOIL DESCRIPTION		Interbedded layers of GRAVELLY SAND and	SILTY SAND:	light brown, fine to coarse, well-to poorly graded, dense to very dense, subangular to	subrounded, trace to some fine to coarse grave trace to little non to slightly plastic silt.	SILTY SAND (SM) (0.0° 10.0°, 40.0° 45.0° and 100.0° 101.0°); brown to dark brown, fine to coarse, poorly graded, loose to dense, subangular to subrounded, calcareous; little to	some nonplastic silt; none to little fine to coar gravel.									
nzcz			2	,	SW.	SP SM	9, 8	No.	ઝ	SM	SM		SM			E C
HOLOGY	LIT		,													
=	F337	0			10-		20-		30-		04		20-	C	5	
DEPTH															_	<i>~</i> =
	3T3M	0		<u>_</u>	<u>ო</u>		<b></b>		50 		<u> </u>		<u> </u>			
VALUE			<u> </u>													
ECOVERY		75	ğ	80	100	<u> </u>	100	8	8	<u>8</u>	8	8	90		<u>8</u>	
34YT 3J	<u>ama</u> s												<u> </u>			



SECTION 3.0

EXPLANATION OF TRENCH LOGS

# 3.0 EXPLANATION OF TRENCH LOGS

See Section 2.0, "Boring Logs", for explanations.

SILTY CLAY, brown, moles, medium plantic, calcareous; stage III caliche (2.5'-5.0').  SILTY SAND, light-brown, fine to medium, poorly graded, slightly moles, subangular to subrounded, calcareous; little nonplastic sit; stage II caliche (5.0'-9.0').  SAND, light gray-brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous.  SP medium dense  SAND, light gray-brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous.  TOTAL DEPTH 14.0' (4.3m)	SILTY CLAY, brown, moles, medium plante, calcareous; stage III caliche (2.5'-5.0').  SILTY SAND, light-brown, fine to medium, poorly graded, slightmoset, subangular to subrounded, calcareous; stage II caliche (5.0'-9.0').  SM medium dense  SAND, light gray-brown, fine to coarse, poorly graded, slightly molest, subangular to subrounded, calcareous.  SAND, light gray-brown, fine to coarse, poorly graded, slightly molest, subangular to subrounded, calcareous.	BULK SAMPLE	METERS	FEET #	LITHOLOGY	nscs	CONSI STENCY	SOIL DESCRIPTION	REM/	ARKS	AN	IEV ALY:	818	11	T.
SILTY SAND, light-brown, fine to medium, poorly graded, slightly moist, subangular to subrounded, calcareous; little nonplastic silt; stage II cellsche (5,0'-9,0').  SAND, light gray-brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous.  SP medium dense  SP medium dense	SILTY SAND, light-brown, fine to medium, poorly graded, slightly most, subangular to subrounded, calcareous; little nonplastic sit; stage II caliche (5.0-9.0').  SAND, light gray-brown, fine to coarse, poorly graded, slightly most, subangular to subrounded, calcareous.  SAND, light gray-brown, fine to coarse, poorly graded, slightly most, subangular to subrounded, calcareous.  TOTAL DEPTH 14.0' (4.3m)			Ó				plastic, calcareous; stage III caliche (2.5'-		_		-		-	
SM medium dense sit; stage II calishe (5.0-9.0').  SAND, light gray-brown, fine to coarse, poorly graded, slightly moist, subengular to subrounded, calcareous.  SP medium dense sit; stage II calishe (5.0-9.0').  SP medium dense sit; stage II calishe (5.0-9.0').	poorly graded, silente nonplastic stable  SM medium dense  SAND, light gray-brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous.  SP medium dense  TOTAL DEPTH 14.0' (4.3m)		• 1	2 -		CL	stiff								
poorly graded, slightly moist, subengular to subrounded, calcareous.	Doorly graded, slightly moist, subangular to subrounded, calcareous.  SP medium dense  TOTAL DEPTH 14.0' (4.3m)		- 2			SM		poorly graded, slightly moist, subengular to subrounded, calcareous; little nonplestic			1	85	14		
	18- 5					SP		poorly graded, slightly moist, subangular							
			•	74-				TOTAL DEPTH 14.0' (4.3m)							

# TRENCH DETAILS

SURFACE ELEVATION

: 5080' (1548m)

DATE EXCAVATED

: 4 NOVEMBER 1980

SURFICIAL SECLOSIC UNIT: A1/A40

TRENCH LENGTH

: 14.0′ (4.3m)

TRENCH ORIENTATION : N-8 WX SITING INVESTIGATION

DEPARTMENT OF THE AIR FORCE - BUG

FISURE

LOG OF TRENCH MD-T-1

**OPERATIONAL BASE SITE** 

MILFORD, UTAH

USAF-37

BULK SAMPLE	METERS	FEET HIG	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMA	IRKS	AN	IEV ALYS	1\$	ĽĽ	<b>1</b>
	- 1	2 - 4 - 6 - 8 -		SC	medium dense	CLAYEY SAND, brown, fine to medium, poorly graded, moist, subengular to subrounded, calcarbous; some slightly plastic clay; stage II callshe (3.5'-5.0').		d walls	1	69	30		
	-3	10-		СН	fim	CLAY, brown, moist, medium plastic, cal- careous.						55	30
	-4	12-		ML	firm	SANDY SILT, brown, moist, nonplastic, calcareous, some fine subangular to sub-rounded sand.			0	45	55		NP
		14-	7.6.2			TOTAL DEPTH 14.0' (4.3m)							
	- 5	16~											
		18~											
	-8	20-											

# TRENCH BETAILS

SURFACE ELEVATION : 5085' (1550m)
DATE EXCAVATED : 4 NOVEMBER 1980

SURFICIAL SECLOSIC UNIT: A1/A40 TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : E-W

LOG OF TRENCH MD-T-2 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BUG

F180FE II-3-2

UGRO NATIONAL, INC. J

BULK SAMPLE	WETERS	HTH.	LITHOLOGY	nscs	CONSISTENC	SOIL DESCRIPTION	REMARKS		LEA	_		
30	<b>E</b>	FEET	5		NOO		<u> </u>	GR	SA	FI	LL	PI
	- 1	2 -		ML	fiem	CLAYEY SILT, dark-brown, slightly moist, medium plastic, calcareous; stage I caliche (1.0'-3.0').		0	1	99	49	18
	- 2	8		SM	dense	SILTY SAND, light-brown, fine, poorly graded, slightly moist, subangular to sub-rounded; calcareous; some slightly plastic silt; stage II caliche (7.0'-10.5').	vertical walls stable	0	68	32		
		12-		CL	firm	CLAY, dark gray-brown, slightly moist, medium plastic, calcareous; trace fine sand; stage I caliche (10.5'-12.5').						
	-4	14-		sm	dense	SILTY SAND, light-brown, fine to medium, poorly graded, slightly moist, subangular to subrounded, calcareous; some nonplastic silt; stage II caliche (12.5'-14.0').						
	- 5	16-				TOTAL DEPTH 14.0' (4.3m)						
		18-										
	-•	20-										

### TRENCH DETAILS

SURFACE ELEVATION : 5075' (1547m) : 4 NOVEMBER 1980 DATE EXCAVATED

SURFICIAL GEOLOGIC UNIT: A1/A40 TRENCH LENGTH : 14.0' (4.3m) TRENCH ORIENTATION : E-W

WX SITING INVESTIGATION

FIGURE II-3-3

DEPARTMENT OF THE AIR FORCE - SMO

LOG OF TRENCH MD-T-3

**OPERATIONAL BASE SITE** 

MILFORD, UTAH

BULK SAMPLE	METERS 30	PTH LIBE	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	IEV		Pi
	0	2		SM	dense	SILTY SAND, light-brown, fine to coarse, poorly graded, dry, subengular to subrounded, calcareous; some nonplastic silt; stage II caliche (1.5'-5.0').					
	- 2 - 3	8		SP	medium dense	SAND, dark-brown, fine to coarse, poorly graded, dry, subengular to subrounded, calcareous; trace gravel; interbedded lenses of silty send throughout.	vertical walls stable				
	- 4	12-		SM	medium dense	SILTY SAND, brown, fine to medium, poorly graded, dry, subangular to subrounded, calcareous; some nonplastic silt.  TOTAL DEPTH 14.0' (4.3m)	•				
	- 5	16-									
	- 6	20-									

#### TRENCH DETAILS

SURFACE ELEVATION : 5280' (1609m)
DATE EXCAVATED : 5 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A54

TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : E-W

LOG OF TRENCH MD-T-4
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMB

FIGURE II-3-4

UGRO NATIONAL INC.

USAF-3

SILTY SAND, light-brown, fine to coerse, poorly graded, dry, subangular to sub-rounded, calcareous; some nonplastic sit; trass fine gravel; stage II callohe (2.0*-5.0*); occasional boulders to 16" size.  SM medium dense  SAND, light-brown, fine to coerse, poorly graded, dry, subangular to subrounded, calcareous; trace nonplastic sit; trace gravel.  TOTAL DEPTH 9.0" (2.7m)  Doulders at 9.0" exceeded capacity of case 580C backhoe	SILTY SAND, light-brown, fine to coarse, poorly graded, dry, subangular to subrounded, calearsous; stage III callohe (2.0'-5.0'); occasional boulders to 16" size.  SM medium dense  SAND, light-brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcarsous; trace nonplastic silt; trace gravel.  TOTAL DEPTH 9.0" (2.7m)  TOTAL DEPTH 9.0" (2.7m)  10-  12-  4  14-  14-  18-	BULK SAMPLE METERS ==	FEET	LITHOLOGY	sosn	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	LYS SA	ıs	ш
SAND, light-brown, fine to coarse, poorly graded, dry, subengular to subrounded, calcareous; trace nonplastic silt; trace gravel.  TOTAL DEPTH 9.0' (2.7m)  10-  12-  14-  14-	SAND. light-brown, fine to coarse, poorly graded, calcareous; trace nonplastic silt; trace gravel.  TOTAL DEPTH 9.0' (2.7m)  Doublers at 9.0' exceeded capacity of case 580C backhoe		2-		SM		poorly graded, dry, subangular to sub- rounded, calearaous; some nonplastic silt; trase fine gravel; stage II caliche (2.0'-5.0');		10	68	22	
12- -4 14-	9.0° exceeded capacity of case 580C backhoe	1 2				1 1	graded, dry, subangular to subrounded, cal-					
14-	-4 18- -5						TOTAL DEPTH 9.0' (2.7m)	9.0' exceeded capacity of case 580C				
-5 18-	-5	-4										
		- 5										

#### TRENCH DETAILS

SURFACE ELEVATION : 5350' (1631m)

DATE EXCAVATED : 5 NOVERMBER 1980

SURFICIAL GEOLOGIC UNIT: ASI TRENCH LENGTH : 12.0' (3.7m)

TRENCH ORIENTATION : E-W

LOG OF TRENCH MD-T-5 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

FIGURE II-3-5

<u>ubro mational inc.</u>

And the second s

BULK SAMPLE	WETERS A	FEET HA	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	I E V	SIS		
BUL					ŝ			GR	SA	FI	3	PI
	- 1	2		SM	medium dense	SiLTY SAND, light-brown, fine to coarse, poorly graded, dry, subengular to subrounded, calcaraous; some slightly plastic silt; little fine to coarse gravel; stage I caliche (0.0'-14.0').		17	54	294		NP
		4	8 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6	GW- GM	dense medium	SANDY GRAVEL, light-brown, fine to coerse, well-graded, dry, subangular to sub-rounded, calcareous; some fine to coerse sand; trace silt.		56	37	7		
	- 2	8-1		sc	medium dense	CLAYEY SAND, light-brown, fine to coarse, poorly graded, slightly moist, subengular to subrounded, calcareous; little medium plastic clay.	vertical wells stable				35	17
	- 3	10-		SM	medium dense	SILTY SAND, light-brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; little slightly plastic silt; little fine to coarse gravel.						
		14-										
		10-				TOTAL DEPTH 14.0' (4.3m)						
	<b>–</b> 5	18										
į	_ e	18-										
		20~										

### TRENCH DETAILS

SURFACE ELEVATION

: 5080' (1548m)

DATE EXCAVATED

: 10 NOVEMBER 1980

SURFICIAL SEDLOSIC UNIT: Aby

TRENCH LENGTH

: 14.0' (4.3m)

TRENCH DRIENTATION : E-W

LOG OF TRENCH MD-T-6 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - DOG

FIGURE II-3-6

BULK SAMP METERS	FEET #14	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	ANA	LYS I	s	LP
0	2 -		ML	firm	CLAYEY SILT, brown, slightly moist, medium plastic, calcareous; trace fine subangular to subrounded send; stage I callahe (0.0'-4.0').		7	6 9	*	
- 2	8-		sc	dense	GRAVELLY SAND, light brown, fine to coarse, poorly graded, dry, subengular to subrounded; calcareous; some fine to coarse gravel; little slightly plastic clay; stage II caliche (4.0'-14.0').	vertical walls stable				
-4	12-				TOTAL DEPTH 14.0′ (4.3m)					
- 5	16-									

### TRENCH DETAILS

SURFACE ELEVATION

: 5085' (1550m)

DATE EXCAVATED

: 11 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A40/A5y TRENCH LENGTH

: 14.0' (4.3m)

TRENCH ORIENTATION

; N-S

LOG OF TRENCH MD-T-7 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - SMO

FIRURE II-3-7

UBRO NATIONAL

• ;•

ا ـه ا	DEPT		LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMA	RKS	AN	LYS	318		
ᆲ			1		NO CON				GR	SA	FI	LL	P
	2 -1 4 -2 8 -3 10	2 -		SM	dense	GRAVELLY SAND, light brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; some fine to coarse gravel; little slightly plastic siltclay; stage III caliche (1.0'-4.0'); stage III caliche (4.0'-4.5'); trace cobbles to 8" size.		l wails ble	34	47	19		
		4 <del>-</del>				TOTAL DEPTH 4.5' (1.4m)	of Cas	cepacity					
<b> -</b>	2	8 –											
-	·3 1	0-											
	8 -3 10 12 -4 14	2-											
		16-											
		16~											
   	6 ;	20-											

# TRENCH DETAILS

SURFACE ELEVATION : 5500' (1676m)
DATE EXCAVATED : 11 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A51
TRENCH LENGTH : 12.0' (3.7m)

TRENCH ORIENTATION : N-S

LOG OF TRENCH MD-T-8 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

FIGURE II-3-8

<u>ugro national, inc.</u>

BULK SAMPLE	METERS A	PTH =	LITHOLOGY	uscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	1	IEV LY:	E		
BUL		FEET	=		CONS			GR	SA	FI	LL	P
	- 1	2 -		мн	firm	SANDY SILT, light brown, slightly moist, medium plastic, calcareous; trace fine sub-angular to subrounded send; stage I caliche (2.0'-4.0').		o	12	88	70	2
	- 2	8 -		сн	firm	CLAY, light olive to black, moist to dry, highly plastic, calcareous; stage I caliche (6.0'-10.0').	vertical walls stable	0	2	98	79	4
	4	12-		SM	medium dense	SILTY SAND, light brown, fine, poorly graded, dry, subangular to subrounded, calcareous; little nonplastic silt.						
		14-				TOTAL DEPTH 14.0' (4.3m)						
	<b>~</b> 5	16-										
	- 6	20-										

# TRENCH DETAILS

SURFACE ELEVATION

: 4990' (1521m)

DATE EXCAVATED

: 12 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A40/A1

TRENCH LENGTH

: 14.0' (4.3m)

TRENCH ORIENTATION : E-W

LOG OF TRENCH MD-T-9 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - SUC

FIGURE II-3-9

US NF-37

BULK SAMPLE	EPTH	LITHOLOGY	uscs	CONSISTENCY	SOIL DESCRIPTION	REMARK	L		YS 1 S	
		1		S			6	R S	A F	LL
- 1	2 -		GM	dense	SANDY GRAVEL, light brown, fine to coerse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coerse send; little slightly plastic silt; stage II caliche (1.0'-4.5'); trace cobbles to 10" size.		5	9 2	8 13	
2	6 - 8 -		SM	dense	GRAVELLY SAND, light brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; some fine to coarse gravel; little nonplastic silt; stage I caliche (4.5'-14.0').	vertical w	ralis	2 4	3 15	
-3	10-		MC	CHTSS						
-4				ı						
	14-					+	$\dashv$			
					TOTAL DEPTH 14.0' (4.3m)					
- 5	16-									
	18-									
-8	20-									
		]						1	}	}

# TRENCH DETAILS

SURFACE ELEVATION

: 5070' (1545m)

DATE EXCAVATED

: 13 NOVEMBER 1980

SUPFICIAL GEOLOGIC UNIT: A54

TRENCH LENGTH

: 14.0' (4.3m)

: N-\$

TRENCH ORIENTATION

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-3-10

<u>ugro national, inc</u>

**LOG OF TRENCH MD-T-10** 

**OPERATIONAL BASE SITE** 

MILFORD, UTAH

20 FEB 81

BULK SAMPLE	WETERS S	FEET	LITH0L06Y	nscs	CONSISTENCY	SOIL DESCRIPTION	REMAR	KS	AN	IEV LYS		LL	PI
	ō.	2~		SM	medium dense	SILTY SAND, light brown, fine to coarse, poorly graded, dry, subengular to subrounded, calcareous; some slightly plastic silt; some fine to coarse gravel; stage I caliche (1.0'-3.0').			29	39	32		
	· 1	4-		sc	dense	CLAYEY SAND, light brown, fine to coarse, poorly graded, dry, subengular to subrounded, clacareous; some slightly plastic clay; little fine gravel; stage II caliche (3.0'-5.0').			14	41	45		
	- 2	8 -				SANDY GRAVEL, yellow brown, fine to coarse, poorly graded, dry, subengular, calcareous; little fine to coarse subengular to subrounded sand; stage III caliche (5.0'-14.0').	vertical stab						
	- 3	10-		GP	very dense								
	- 4	14-						,					
	- 5	16-				TOTAL DEPTH 14.0' (4.3m)							
		18-											
	- 6	20-											

### TRENCH DETAILS

SURFACE ELEVATION

: 5400' (1646m)

DATE EXCAVATED

: 13 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A5

TRENCH LENGTH

: 14.0' (4.3m)

TRENCH DRIENTATION

: E-W

LOG OF TRENCH MD-T-11 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG

FISURE II-3-11

FN-TR-44 CONSISTENC LI THOLOGY SIEVE uscs SOIL DESCRIPTION REMARKS ANA LYS IS GR SA FI LL PI SANDY GRAVEL, light brown, fine to course, poorly graded, slightly moist, subangular to subrounded, calcareous; little to some fine 60 26 15 to coarse sand; little slightly plastic clay; medium silty sand (4.0'-5.0'); stage I caliche (1.0'dense 4.0'); stage II caliche (5.0'-14.0'); trace cobbles to 10" size medium 12 51 27 22 dense - 2 vertical walls stable 63 18 19 dense TOTAL DEPTH 14.0' (4.3m) 16 - 5 18-20-TRENCH DETAILS SURFACE ELEVATION : 5160' (1573m) LOG OF TRENCH MD-T-12 : 14 NOVEMBER 1980 DATE EXCAVATED

SURFICIAL GEOLOGIC UNIT: A5y

TRENCH LENGTH TRENCH ORIENTATION : 14.0' (4.3m)

: N-S

**OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 200

FIGURE II-3-12

BULK SAMPLE	METERS 30	PTH	LITHOLOGY	nscs	CONSI STENCY	SOIL DESCRIPTION	REMARKS	•	LYS			
DOLI	띨	FEET	117		NOS			GR	SA	F١	LL	PI
	- 1	ô 2		GW- GM	dense	SANDY GRAVEL, light brown, fine to coarse, well to poorly graded, moist to styr, subengular to subrounded, calca cous; little to some fine to coarse end; trace slightly plastic silt; stage II caliche (1.0'-10.5'); little cobbles to 12" size.		74	18	8		
	- 2	6 - 8 -		GР	very dense		vertical wells stable					
	- 3	10-				TOTAL DEPTH 10.5' (3.2m)	cementation at					
	- 4	12-					capacity of Case 580C backhoe					
		14-										
	- 5	16-										
		18-										
	- 6	20-										

SURFACE ELEVATION : 5280' (1609m)
DATE EXCAVATED : 14 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A54/A59

TRENCH LENGTH

; 13.0' (4.0m)

TRENCH ORIENTATION

: E-W

**LOG OF TRENCH MD-T-13 OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 900

FIGURE II-3-13

BULK SAMPLE	WETERS 33	FEET =	LITHOLOGY	uscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	IEV ALY:	315	LL	Pi
	0	2-		sc	medium dense	CLAYEY SAND, light brown to brown, fine to coarse, poorly graded, slightly moist, subengular to subrounded, calcareous; some slightly plastic clay; stage II caliche (1.0'-14.0').					28	
	- 1	4-			dense							
	- 2	6 -		sc	dense	GRAVELLY SAND, light brown, fine to coarse, poorly graded, slightly moist, sub-angular to subrounded, calcareous; little to some fine to coarse gravel; little medium plastic clay to trase nonplastic silt.	vertical walls stable					
	- 3	10-										
	-4	12-		SP. SM	medium dense							
		14-				TOTAL DEPTH 14.0' (4.3m)						
}	- 5	16-										
		18-										
}	- 6	20-										

SURFACE ELEVATION : 5110' (1558m)
DATE EXCAVATED : 15 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A54

TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : N-S

LOG OF TRENCH MD-T-14 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

F1 60 8 E

<u>UGRO NATIONAL INC.</u>

48AF-37

FN-TR-44

BULK SAMPLE	WETERS TO		LITHOLOGY	USCS	CONSISTENCY	SCIL DESCRIPTION	REMARKS	AM		818		
108	¥	FEET	.11		86		<u> </u>	GR	SA	FI	LL	Ŀ
	0	0		SM	medium dense	SILTY SAND, brown, fine to coarse, poorly graded, moiet, subengular to subrounded, calcareous; some slightly plastic silt; stage I caliche (1.0'-2.0').		2	64	34		
	1	4-			dense	GRAVELLY SAND, brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; some fine to coarse gravel; trace slightly plastic silt; stage II. caliche (2.0'-14.0').					i	
	- 2	8-			medium dense				) ) )			
	•	8 -		SM			vertical walls stable					
-	. 3	10-			dense							
4	· <b>4</b>	12-			medium dense				}			
						TOTAL DEPTH 14.0' (4.3m)						
  - 	- 5	16-		)       								
		18-										
-	. 8	20-										

## TRENCH DETAILS

SURFACE ELEVATION : 5160' (1573m)
DATE EXCAVATED : 15 NOVEMBER 1980

SURFICIAL BEOLOGIC UNIT: A3

TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : N-S

LOG OF TRENCH MD-T-15 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMB

FI CURE II - 3 - 15

88AF-37

UGRO NATIONAL INC.

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SURFACE ELEVATION : 5340' (1628m) DATE EXCAVATED : 16 NOVEMBER 1980

SURFICIAL REGLORIC UNIT: ASI TRENCH LENGTH : 14.0' (4.3m)

: E-W

TRENCH ORIENTATION

**LOG OF TRENCH MD-T-16 OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 1

FIGURE II-3-16

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37 46 17

GR SA FI LL PI

30 39 18

## TRENCH DETAILS

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SURFACE ELEVATION : 5340' (1628m) : 17 NOVEMBER 1980 DATE EXCAVATED

SURFICIAL GEOLOGIC UNIT: A54 TRENCH LENGTH : 14.0' (4.3m) : E-W TRENCH ORIENTATION

MX SITING INVESTIGATION

DEPARTMENT OF THE AIR FORCE - SWO

FIGURE II-3-17

20 FEB 81

**LOG OF TRENCH MD-T-17** 

**OPERATIONAL BASE SITE** 

MILFORD, UTAH

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PTH	THOLOGY	uses	SISTENCY	SOIL DESCRIPTION	REMARKS	AN	A LYS	818	
2-	11		<b>8</b> 5	SILTY SAND, light brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; some slightly plastic sits; little fine gravel; stage II caliche (1.0'-9.0'); stage III caliche (9.0').					
4 8		SM	dense		vertical walls stable				
8-			· · ·	TOTAL DEPTH 9.0' (2.7m)	comentation at 9.0' exceeded congrity of Case				
12-					580C backhos				
16-									
18-									
	1333 0 2 - 4 - 10 - 12 - 14 - 16 - 18 - 18 - 18 - 18 - 18 - 18 - 18	8- 10- 12- 14-	8	90 10 11 2 - SM dense 14 - 16 - 18 - 18 - 18 - 18 - 18 - 18 - 18	SILTY SAND, Mght brown, fine to coarse, poorly graded, alighty moist, autorigater to subrounded, calescence; some alighty plantic sit; little fine grave; stage II caliche (1.0'-9.0'); stage III caliche (9.0').  SM dense  TOTAL DEPTH 9.0' (2.7m)  10-  14-  18-	SILTY SAND, light brown, fine to ecerus, poorty graded, slightly moiet, subangular to subrounded, cakeaveous; some slightly plants sit; little fine gravet; stage Tallache (1.0'-9.0'); stage TT caliche (9.0').  TOTAL DEPTH 9.0' (2.7m)  Committation at 9.0' exceeded capacity of Case 590C backfloss  10-  10-  10-  10-  TOTAL DEPTH 9.0' (2.7m)  REMARKS  REMARKS  REMARKS	SOIL DESCRIPTION  SILTY SAND, light brown, fine to coarse, poorly graded, slightly molet, subangular to subrounded, categorous; some slightly plants sit; little fine grows; stage III caliche (1.0'-9.0'); stage III caliche (9.0').  SM dense  TOTAL DEPTH 9.0' (2.7m)  TOTAL DEPTH 9.0' (2.7m)  TOTAL DEPTH 9.0' (2.7m)  Semenstion at 9.0' exceeded capacity of Case SOC backhop	SOIL DESCRIPTION  SILTY EAND, light brown, fine to ecerus, poorly product, elightly moiest, subangular to subcouncied, classes are subcouncied, classes and substitute att; little fine gravel; steps III caliche (1.0'-9.0'); stage III caliche (9.0').  SM dense   TOTAL DEPTH 9.0' (2.7m)  Commentation at 9.0' exceeded experience of search of the stable o	SOIL DESCRIPTION  REMARKS  SILTY SAND, Mont brown, fine to corese, poorly graded, slightly moiet, subangular to submonded, calespoors; some slightly plantic slit; little fine gravet; steps III calcine (1.0'-9.0'); stage III calcine (1.0'-9.0').  SM dense  TOTAL DEPTH 9.0' (2.7m)  Commentation at 9.0' gazeroscide capacity steps III calcine (1.0'-9.0') and the stable (1.0

: 18 NOVEMBER 1980. DATE EXCAVATED

SURFICIAL SEOLOGIC UNIT: ASI

TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : N-S

LOG OF TRENCH MD-T-19 **OPERATIONAL BASE SITE** MILFORD, UTAH

WX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BUG

FIRURE II-3-19

BULK SAMPLE	METERS 30	FEET =	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	I E V	818		1
	0	0		sc	dense	CLAYEY SAND, light brown, fine to coarse, poorly graded, moist, subengular to sub-rounded, salesreous; some medium plastic clay; trase fine gravel; stage II caliche (1.0'-		T	4			
	- 1	4-				14.0'); decasional cobbles to 12" size.  SANDY GRAVEL, light brown, fine to coerse, well graded, moist, subangular to sub-rounded, calcareous; some fine to coerse sand.		61	37	2		
	- 2	6 - 8 -		GW	dense		vertical walls stable					
	- 3	10-	\$00 80°C			GRAVELLY SAND, light brown, fine to coarse, poorly graded, moist, subengular to subrounded, calcareous; some fine to coarse gravel.					) (*	
	-4	12-		SP	dense						 	
		14-				TOTAL DEPTH 14.0' (4,3m)	<b>+</b>					
	- 5	18-										
		18-										
	- 8	20-										
		20-										

SURFACE ELEVATION : 5500' (1676m)

DATE EXCAVATED : 19 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A54

TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : N-S

LOG OF TRENCH MD-T-20 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMG

F1 CURE II - 3 - 20

UBRO MATIONAL INC.

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# TRENCH DETAILS

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SURFACE ELEVATION : 5420' (1652m) DATE EXCAVATED : 31 OCTOBER 1980

SURFICIAL GEOLOGIC UNIT: ASI

TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : E-W

**LOG OF TRENCH BL-T-13 OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG

FIGURE II-3-21

FN-TR-44

BULK SAMPLE	METERS 30	FEET =	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	IEV LYS	15	LL	PI
	0	ĝ 2 –		GP- GM	dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, dry, angular to subangular, calcareous; some fine to coarse send; trace non-plastic sit; some cobbles to 6" size.	vertical wells stable		24			
	- 1	4-				TOTAL DEPTH 2.5' (0.8m)	Rock at 2.5' exceeded capacity of case 590C backhoe					
	- 2	8 -										
	<b>–</b> 3	10-									: : :	
	4	12-										
		14-										
	<del>-</del> 5	18-										
	- 8	20-										

## TRENCH DETAILS

SURFACE ELEVATION : 5700' (1737m)
DATE EXCAVATED : 1 NOVEMBER 1980

SURFICIAL REOLOGIC UNIT: 14

TRENCH LENGTH : 10.0' (3.0m)

TRENCH ORIENTATION : 5-W

LOG OF TRENCH BL-T-14 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BUR

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TUBRO NATIONAL

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BULK SAMPLE Meters ==	EPTH ta	LITHOLOGY	uscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS		IEV			
BULI		<u> </u>		CON	<u> </u>		GR	SA	FI	LL	P
0	2 -		SM	dense	GRAVELLY SAND, brown to light brown, fine to coarse, poorly graded, dry, subengular calcareous; some fine to coarse gravel; little slightly plastic silt; stage III caliche (1.0'-3.5'); stage III caliche (3.5'-4.0'); occasional cobbles to 6" size.	vertical walls stable	36	51	13		
<u> </u>	4.			very dense		1					Ì
	6.				TOTAL DEPTH 4.0' (1.2m)	cementation at 4.0' exceeded capecity of Case 580C backhoe					
- 2	•	1									
	8 -										
- 3	10-										
	12-										
-	14-										
- 5	16										
	18-			:							
- 6	20-										

SURFACE ELEVATION : 5520' (1682m)
DATE EXCAVATED : 1 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A51

TRENCH LENSTH : 10.0' (3.0m)

TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-15 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

II-3-23

UBRO NATIONAL INC.

BULK SAMPLE	METERS	FEET	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	SIEV ALYS SA	315	LL
	- 1	2		SM	medium dense	SILTY SAND, light brown, fine to coarse, poorly graded, dry, subsngular to subrounded, calcareous; some nonplastic silt; stage II caliche (1.0'-5.0').					
	- 2	8 -				GRAVELLY SAND, dark brown, fine to coarse, poorly graded, dry, subengular to subrounded, calcareous; some fine to coarse gravel.	vertical wells stable				
-1	<b>-3</b>	10-		SP	medium dense						
	-4	14-				TOTAL DEPTH 14.0' (4.3m)					
	-5	18-									
	- 6	20-									

SURFACE ELEVATION : 5375' (1638m)
DATE EXCAVATED : 1 NOVEMBER 1980

SURFICIAL GEGLOGIC UNIT: ASI

TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : N-S

LOG OF TRENCH BL-T-16 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

F1 60 RE

UGRO NATIONAL INC.

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BULK SAMPLE	METERS DE	FEET	LI THOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	LY:	218	LL	PI
2	0	2 -			3	SILTY CLAY, brown to dark gray, very molet to seturated, slightly plastic, calcareous.		0			26	
	- 1	4-		CL	firm		verticel wells stable					
	- 2	8			=							
	-3	10-		-		TOTAL DEPTH 10.0' (3.0m)	excavation terminated	+	-	-	-	+
	-4	12-					due to water level at 5.0'					
		14-		   								
	-5	16-										
		18-										
	-8	20-										

: 5080' (1548m) SURFACE ELEVATION : 2 NOVEMBER 1980 DATE EXCAVATED

SURFICIAL GEOLOGIC UNIT: A1/A1-: 12.0 (3.7m) TRENCH LENGTH : E-W

TRENCH ORIENTATION

LOG OF TRENCH BL-T-17 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BM

FIGURE II-3-25

BULK SAMPLE	METERS	FEET	LITHOLOGY	sosn	CONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE ANA LYSIS GR SA FI LI
	0	2 -			firm	SILT, brown to dark olive-gray, moist to saturated, medium plastic, calcareous; stage II caliche (1.0'-2.0'); stage III caliche (2.0'-5.0').		0 38 62 56
	- 2	6-		мн	suff		vertical walls stable	
	•	8 -			firm			
	- 3	10-				TOTAL DEPTH 10.0' (3.0m)	terminated due to water level at 7.5'	1
	- 4	12-					10001 26 7.5	
		14-						
	- 5	16~						
		18-						
}	- 8	20-	1					

SURFACE ELEVATION : 5090' (1551m)
DATE EXCAVATED : 2 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A40 TRENCH LENGTH : 12.0' (3.7m)

TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-18 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 8000

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BULK SAMPLE	METERS FI	FEET #1	LITHOLOGY	nscs	CONSI STENCY	SOIL DESCRIPTION	REMARKS	AN	IEV ALYS	15		
Bu Bu	0	2 -	<b>-</b>	SM	medium dense	SILTY SAND, light brown, fine to medium, poorly graded, moist, subengular to subrounded, calcareous; some slightly plastis silt; stage II caliche (1.0'-3.0').		O	54 54	46	LL	Pi
	- 2 - 3	8 10 12		сн	firm	CLAY, light brown, moist, highly plastic, calcareous.	vertical wells stable				67	35
	- 4 - 5	14	in the state of th			TOTAL DEPTH 14.0" (4.3m)						
	- 6	18-										

SURFACE ELEVATION : 5105' (1556m)
DATE EXCAVATED : 2 NOVEMBER 1980

SURFICIAL REOLOGIC UNIT: A5y/A4o TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-19 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 900

F1 CURE II - 3 - 27

UBRO NATIONAL INC

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REMARKS

vertical walls

stable

LOG OF TRENCH BL-T-20 **OPERATIONAL BASE SITE** MILFORD, UTAH

WX SITING INVESTIGATION

FIGURE II-3-28

TRENCH DETAILS

SURFACE ELEVATION

: 5140' (1567m)

DATE EXCAVATED

: 2 NOVEMBER 1980

SURFICIAL REQLORIC UNIT:

A5y

TRENCH LENGTH

: 14.0' (4.3m)

TRENCH ORIENTATION

: N-S

DEPARTMENT OF THE AIR FORCE - MIC

BULK SAMPLE	j	PTH	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS		IEV			
DOLK.	METERS	FEET	111	_	CONS			GR	SA	FI	LL	PI
	0	2 -		CL	firm	SILTY CLAY, brown, moist, medium plastic, calcareous; trape fine send.						
	- 1 	4-				SILT, light brown, dry, slightly plastic, cal- careous; trace fine subrounded send.		0	8	92	30	6
	- 2	6-		ML	firm		vertical walls stable					
	-3	10~										
	- 4	12-		SM	medium dense	SILTY SAND, brown, fine to coerse, poorly graded, dry, subangular to subrounded, calcaregus; some nonplastic silt.						
		14-		_			<del>                                     </del>	-				
	- 5	16-				TOTAL DEPTH 14.0' (4.3m)						
		18-										
	- 8	20-										
		20-										

SURFACE ELEVATION : 5145' (1568m)
DATE EXCAVATED : 2 NOVEMBER 1980

SURFICIAL SECLOSIC UNIT: A5y/A40 TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : N-S

LOG OF TRENCH BL-T-21 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - SUC

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BULK SAMPLE	METERS R	ET HTG	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS		IEV	-		
3		FEET	5		NO CO			GR	SA	FI	Ľ	PI
	- 1	2 ~~		SM	medium dense	interbedded layers of SILTY SAND and SANDY SILT:  SILTY SAND (SM): brown to light brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; little to some nonplastic silt; trace fine to coarse gravel; stage II caliche (1,0'-5,0').  SANDY SILT (ML): light brown, slightly moist slightly plastic, calcareous; some fine to medium subengular to subrounded sand.		5	73	22		
	- 2	8-		ML	stiff		vertical wells stable					
	-3	10-		SM	medium dense			7	77	16		
	,	14-				TOTAL DEPTH 14.0' (4.3m)						
	- 5	16-										
		18-										
:	5	20-										

TRENCH ORIENTATION

SURFACE ELEVATION : 5180' (1579m) DATE EXCAVATED : 2 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: ABI TRENCH LENGTH : 14.0'(4.3m) : E-W

**LOG OF TRENCH BL-T-22 OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMB

FIGURE II-3-30

20 FEB 81

SAM	_	LITHOLOGY	uscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	1	A LYS			
BULK SAMPLE METERS SA	FEET	5	_	CONS			GR	SA	FI	ΙL	PI
	2 -				SILTY SAND, brown, fine to coarse, poorly graded, slightly moist, subangular to sub-rounded, calcareous; some nonplastic slit; stage II caliche (2.0'-5.0').						
-1	4 -				,						
- 2	8 -		SM	medium dense		vertical walls stable					
-3	10-										
-4	12-										
					TOTAL DEPTH 14.0' (4.3m)						
- 5	16-										
	18-										
-8	20-										

SURFACE ELEVATION : 5200' (1585m) DATE EXCAVATED : 2 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: A51 : 14.0' (4.3m) TRENCH LENGTH TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-23 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - SMO

FIGURE II-3-31

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BULK SAMPLE	METERS A	PTH 133	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMA	RKS	AN	IEV LYS	\$18	LL	Pi
	0	2 -		SM- SC	firm	SILTY SAND-CLAYEY SAND, light brown, fine to coerse, poorly graded, slightly moist, subengular to subrounded, calcareous; some slightly plastic silt-clay; stage I caliche (1.5'-5.0').						26	
	- 2 - 3	8		SP.	medium dense	GRAVELLY SAND, brown, fine to coarse, poorly graded, dry, subangular to sub-rounded, calcareous; some gravel.	vertica sta						
	4	12-		ML	firm	SANDY SILT, light brown, dry, slightly plastic, calcareous; some fine subangular to subrounded sand.  TOTAL DEPTH 14.0' (4.3m)							
	- 5	18-				· -							
	- 8	20-											

SURFACE ELEVATION : 5175'(1577m)

DATE EXCAVATED : 3 NOVEMBER 1980

SURFICIAL GEOLOGIC UNIT: ASY

TRENCH LENGTH : 14.0' (4.3m)

TRENCH ORIENTATION : E-W

LOG OF TRENCH BL-T-24 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMB

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**UBRO NATIONAL INC.** 

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SECTION 4.0

EXPLANATION OF TEST PIT LOGS

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# 4.0 EXPLANATION OF TEST PIT LOGS

See Section 2.0, "Boring Logs", for explanations.

BULK SAMPLE	METERS S	PTH E	i THOLOGY	nscs	C ONSISTENCY	SOIL DESCRIPTION	REMARKS	J	ALY:			
38		FEET	ri1		CONS			GR	SA	FI	LL	PI
	-1	2 - 3 -		5	firm	SANDY CLAY, dark brown, moist, highly plastic, calcareous; little fine sand; stage II caliche (1.5'-4.0').		0	18	82	61	32
	-2 -	5 - 8 - 8 -		SM	medium dense	SILTY SAND, dark brown, fine to medium, poorly graded, moist, subangular to sub-rounded, calcareous; little nonplastic silt.	vertical walls	0	82	18		
	- 3	9		SP	medium dense	SAND, dark brown, fine to coarse, poorly graded, moist, subangular to subrounded, calcareous.						
						TOTAL DEPTH 10.0' (3.0m)						

SURFACE ELEVATION: 5080' (1548m) SURFICIAL GEOLOGIC UNIT: A1/A40

> LOG OF TEST PIT MD-P-1 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 800

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UBRO NATIONAL INC.

BULK SAMPLE	METERS A	FEET HI	LITHOLOGY	SÜSN	CONSIS TENCY	SOIL DESCRIPTION	REMARKS	1	ALY	'E S I S		
	0	0			NO 3	SANDY CLAY, light brown, slightly malet,	+ - +	GR	SA	FI	LL	P
T						slightly plastic, calcareous; trace fine to medium subangular to subrounded sand.						
		1 -									32	,
	-	2 -										
		•							}			
		3~										
	- 1											
		4-										
		5 -		CL	firm		vertical walls stable					
		6										
	- 2	<b>U</b>										
		7-										
								[				
	-	8 -										
		9 -										
	- 3	10-										
		, , ,				TOTAL DEPTH 10.0' (3.0m)						
			ATION: 5095'									

LOG OF TEST PIT MD-P-2 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMO

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ugro Mational, Inc.

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FN-TR-44 SIEVE nscs SOIL DESCRIPTION REMARKS ANALYSIS BR SA FI LL PI CLAY, brown, moist, medium plastic, calcareous. CL firm stable - 2 TOTAL DEPTH 10.0' (3.0m) SURFACE ELEVATION: 5100' (1554m) SURFICIAL BEOLDBIC UNIT: A1/A40

> LOG OF TEST PIT MD-P-3 OPERATIONAL BASE SITE MILFORD, UTAH

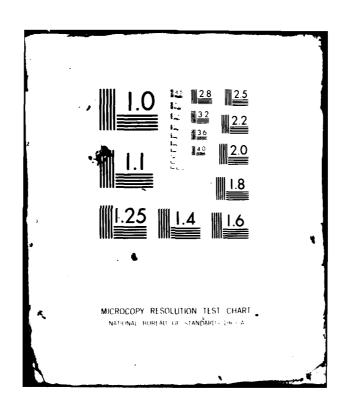
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

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UBRO NATIONAL INC

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FUGRO NATIONAL INC LONG BEACH CA F/6 8/13
PRELIMINARY GEOTECHNICAL INVESTIGATION PROPOSED OPERATIONAL BAS=ETC(U)
FEB\_61 F04704-80-C-0006 AD-A112 987 FEB 81 UNCLASSIFIED FN-TR-44-VOL-2 NL 2 -: **4** 



BULK SAMPLE	WETERS 33	PTH	LITHOLOGY	USCS	C ONS! S T E NCY	SOIL DESCRIPTION	REMARKS		SIEV ALY:			
	<u> </u>	FEET	=		CONS			GR	SA	FI	LL	P
	0	1 -		sc	dense	CLAYEY SAND, light brown, fine to coarse, poorly graded, dry, subangular to sub-rounded, calcareous; some slightly plastic clay; little fine to coarse gravel; stage III. caliche (1.0'-4.0').		15	60	25	36	1
	1	3 <b>-</b>			dense	SILTY SAND, light brown, fine to medium, poorly graded, dry to moist, subangular to subrounded, calcareous; some nonplastic silt.	vertical walls					
	- 2	6 7 8		SM	medium dense			1	54	45		
	3	9 1 0				TOTAL DEPTH 10.0' (3.0m)						

SURFACE ELEVATION: 5230' (1594m) SURFICIAL BEOLOGIC UNIT: A5i

LOG OF TEST PIT MD-P-4
OPERATIONAL BASE SITE .
MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG

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DULK SAMPLE	METERS S	FEET HE	LITHOLOGY	USCS	OMS; S TEMCY	SOIL DESCRIPTION	REMARKS	AN	IEV ALY:	\$ 1 \$	1	
106	0	1	n	SM	medium dense	SILTY SAND, light brown, fine to coarse, poorly graded, dry, subangular, calcareous; some nonplastic silt; trace fine gravel.		GR	SA	Fi	LL	P
	- 1	3 — 4 — 5 — 7 — 8 — 7 — 7		SP- SM	dense	GRAVELLY SAND, light gray-brown, fine to coarse, poorly graded, dry, subengular, calcareous; trace fine gravel; trace non-plastic silt; stage III caliche (3.0'-8.0').	vertical walls stable					
	-3	9				TOTAL DEPTH 8.0' (2.4m)	cementation at 8.0' exceeded capacity of Case 580C backhoe					

SURFICIAL GEOLOGIC UNIT: ASI

LOG OF TEST PIT MD-P-5 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG

FIEURE II-4-5

DULK SAMPLE	ETERS 30	PTH 1334	LITHOLOGY	nscs	c onsi s t e m c v	SOIL DESCRIPTION	REMARKS	AN	ALY:	15	7.
200	0	1 - 2 -		SM		SILTY SAND, light brown, fine to coarse, poorly graded, slightly moist, subengular to subrounded, categraeus; little slightly plestic silt; trace fine to coarse gravel; stage I caliche (1.0'-10.0'); occasional cobbles and boulders to 15" size.		GR	SA 	FI	
	1	3 - 4 - 5 -			•	GRAVELLY SAND, light brown, fine to coerse, poorly greded, moist, subengular to subrounded, calcareous; same fine to coerse gravel; trace silt.	vertical walls stable:	42	49	9	
	_ 2	7		SP- SM	medium dense						
	3	9 -				TOTAL DEPTH 10.0' (3.0m)					

LOG OF TEST PIT MD-P-6 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMS

F1 80 RE II - 4 - 6

**VORO NATIONAL INC.** 

20 FEB 81

LOG OF TEST PIT MD-P-7 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 800

F160RE II-4-7

**VORO NATIONAL INC.** 

20 FEB 81

BULK SAHPL	METERS	FEET NA	LITHOLOGY	USCS	ONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	\$18		
3	0	1~	1	sc	medium dense	CLAYEY SAND, brown, fine to operse, poorly graded, alightly moist, subangular to subrounded, calcureous; some slightly plastic clay; trace fine gravel; stage I caliche (0.5'-1.5'); occasional cobbles to 10" size.			30	L	PI
	-1	3-4-		SP.	dense	GRAVELLY SAND, light brown, fine to coarse, poorly graded, dry to slightly moist, subsngular to subrounded, calcareous; some fine to coarse gravel; trace nonplastic slit; stage II caliche (1.5'-10.0').	vertical wells stable				
;	-2	8-									
	3	10-				TOTAL DEPTH 10.0' (3.0m)		1			

LOG OF TEST PIT MD-P-8 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 900

FI SURE II - 4 - 8

**UBRO NATIONAL INC.** 

USAF-21

BULK SABPLE		PTH	LITHOLOGY	nscs	COMSISTENCY	SOIL DESCRIPTION	REMARKS		IEVE		
	METERS	FEET	11	3	) <b>( ) ( )</b>	••••••••••••••••••••••••••••••••••••••		L_		ı Li	۰[
	- 2	1 - 2 - 3 - 4 - 5 - 8 - 8 - 8 - 8 - 8 - 8 - 8 - 8 - 8		SM	medium dense	SILTY SAND, brown, fine to coarse, poorly graded, slightly moist, subengular to subrounded, calcareous; some medium plastic silt; stage I caliche (2.0'-10.0').	ver <u>sical welle</u> stable				
	-3	9 -		SP	medium dense	GRAVELLY SAND, brown, fine to coarse, poorly graded, slightly moist, subengular to subrounded, calcareous; little fine to coarse gravel.		<b>.</b>			
						TOTAL DEPTH 10.0' (3.0m)					

SURFICIAL BEOLOGIC UNIT: A1

LOG OF TEST PIT MD-P-9 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 200 FIGURE

20 FEB 81

BULK SABPLE	METERS S	PTH LIJE	LITHOLOGY	USCS	C ONS; S T ENCY	SOIL DESCRIPTION	REMARKS	AN	IEV ALY: SA	- 1	LL	Ti
	-	1 -		SM	medium dense	SILTY SAND, light brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; little slightly plastic silt; trace fine gravel; stage I caliche (1.0'-2.0').						
	-1	3-		SP.	dense	GRAVELLY SAND, light brown, fine to coerse, poorly graded, dry, subengular to subrounded, calcareous; some fine to coerse gravel; trace to some slightly plastic sit; stage II caliche (2.0'-8.0'); stage III caliche (6.0'-8.0'); stage II caliche (8.0'-10.0').	vertical walls stable					
	- 2	7 - 8 -		SM	dense			28	50	22		
	-3	10-				TOTAL DEPTH 10.0 (3.0m)						

LOG OF TEST PIT MD-P-10 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMG

FI EURE

<u>ubro national inc.</u>

20 FEB 81

BULK SAMPLE	METERS 30	FEET	LITHOLOGY	SOSA	C ONSISTENCY	SOIL DESCRIPTION	REMARKS	SIEVE AMALYSIS				
를								GR	SA	FI	LL	Ī
	- 1 - 2	3 - 3 - 4 - 9 - 10 - 10 - 10 - 10 - 10 - 10 - 10		SM	dense	GRAVELLY SAND, light brown, fine to coarse, poorly graded, dry, subengular to subrounded, calcareous; some fine to coarse gravel; little slightly plastic slit; stage II caliche (1.0'-10.0'); trace cobbles to 12" size.	verticel walls stable					
Í						TOTAL DEPTH 10.0' (3.0m)		1				
- 1			i l	1			1	1	1	ı	1	1

LOG OF TEST PIT MD-P-11 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - DMG

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FI SURE

UBRO NATIONAL INC.

20 FEB 81

BULK SAMPLE	EPTH	LITHOLOGY	nscs	CONSI S TENCI	SOIL DESCRIPTION	REMARKS	AN	ALY	\$1\$	L	
100		<b>-</b>		MO	CLAY, brown, slightly moist, medium plastic, calcareous; trace fine subengular to subrounded send; stage I caliche (2.0'-10.0').		GR	SA	FI	LL	PI
	2.		CL	firm						30	18
    -	4-				CLAYEY SAND, dark brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; some medium plastic clay; trace fine gravel.	vertical walls stable					
- 2	8- : 7-		sc	medium dense							
- 3	8 -										
	10-	AT100: 5010	(152	7m)	TOTAL DEPTH 10.0' (3.0m)	<b>V</b>					
iúr fíci	IAL BÈ	ATION: 5010 BLOGIC UNIT:	A1/	'A40	LOG	OF TEST PIT MD	-P-1	2		-	

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG

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US AF-21

BULK SAMPLE	ETERS OF	PTH	LITHOLOGY	nscs	Consi s tency	SOIL DESCRIPTION	REMARKS		ALY			
	0	1 -	1	CL	firm	CLAY, brown, slightly moist, medium plastic, calcareous; trace fine subangular to subrounded send; stage I calishe (2.0'-10.0').		88	SA	FI	42	
	1	3-4-				CLAYEY SAND, dark brown, fine to coarse, poorly graded, slightly molet, subengular to subrounded, calcareous; some medium plastic clay; little fine gravel.	vertical wells stable					
	_2	7~		sc	medium dense							
	- 3	10-	ATION: 5010 GLOBIC UNIT:			TOTAL DEPTH 10.0' (3.0m)		-				

LOG OF TEST PIT MD-P-13 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 9M9

FI SURE I - 4 - 13

**VBRO NATIONAL INC.** 

USAF-21

BULK SAMPLE	METERS OF	FEET	LITHOLOGY	nscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	ALY:	212		
	0	1 - 2 -		CL	firm	SILTY CLAY, brown, slightly moist, slightly plastic, calcareous; trace fine subenquiar to subrounded sand; stage Tosliche (2.0'-10.0').		GR	SA	FI	29	
	- 2	5 6 7 8		sc	dense	CLAYEY SAND, light brown, fine to coarse, poorly graded, subangular to subrounded, calcareous; some medium plastic clay; little fine gravel.	vertical wells stable					
	- 3	9 - 1 0 -			·	TOTAL DEPTH 10.0' (3.0m)						

LOG OF TEST PIT MD-P-14 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - DMD

Fraure II - 4 - 14

UGRO NATIONAL INC.

USAF-21

BULK SAMPLE	METERS S	FEET #1	LITHOLOGY	USCS	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	IEV ALY:	18		
106	0	1 - 2 - 3 -		sc	medium dense	CLAYEY SAND, light brown, fine, poorly graded, slightly moist, subengular to sub-rounded, calcareous; some slightly plastic clay.	vertical walls stable	GR	SA	FI	LL	
	- 2	5 6 7 8		SM	loose	SILTY SAND, light brown, fine, poorly graded, dry, subengular to subrounded, calcareous; some nonplastic silt.	vertical walls caving					
	- 3	8 - 10 -				TOTAL DEPTH 10.0' (3.0m)						

LOG OF TEST PIT MD-P-15 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMG

FIGURE 115

<u>ubro national inc.</u>

USAF-21

DULK SAMPLE	METERS	FEET HTG	LITHOLOGY	SOSO	C ONSISTENCY	SOIL DESCRIPTION	REMAR	KS	-	IEV LYI			
	0	0	<b>=</b>	SM	medium dense	Interbedded layers of SANDY GRAVEL and GRAVELLY SAND: SANDY GRAVEL (GW-GM): light brown,	1		R	SA	FI	LL	PI
	- 1	2 -		GW- GM	dense	fine to coarse, well graded, dry, subangular to subrounded, calcareous; some fine to coarse sand; trace slightly plastic silt; stage II caliche (2.0'-4.0').  GRAVELLY SAND (SM, SC): light brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; little to some fine to coarse gravel; little to some slightly plastic clay and silt; stage I caliche (4.0'-10.0').			46	43	11		
	_	5 -		sc	medium dense		vertical v						
	-2	7 - 8 - 9 -		SM	dense				32	45	23		
11	- 3	10-				TOTAL DEPTH 10.0' (3.0m)	1						

LOG OF TEST PIT MD-P-16 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II - 4 - 16

USAF-21

DULK SABPL	METERS	FEET 🛁	LITHOLOGY	nscs	OMS; \$ TENCY	SOIL DESCRIPTION	REMARKS	AN	IEV	5 I S	
<b>100</b>	1	2 - 3 -	3	SM	dense	GRAVELLY SAND, light brown, fine to coarse, poorly graded, dry to slightly moist, subengular to subrounded, celeareous; some fine to coarse gravel; trace to little slightly plastic silt; stage II caliche (1.0'-8.0').		GR	SA	FI	
	-2	5-		SW- SM	medium dense		vertical walls stable				
		8 -		SM	medium dense	SILTY SAND, light brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; some slightly plastic silt.					
į	- 3	10-				TOTAL DEPTH 10.0' (3.0m)	<del>  •</del>				

LOG OF TEST PIT MD-P-17 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - SMO

FI SURE

UBRO NATIONAL INC.

US AF-21

20 FEB 81

DEPARTMENT OF THE AIR FORCE - BMG

USAF-21

BULK SAMPLE	EPTH	LITHOLOGY	USCS	COMSISTENCY	SOIL DESCRIPTION	REMARKS	AN		E \$18	1_	Ţī
	1 -		SM		GRAVELLY SAND, light brown, fine to coarse, poorly graded, dry, subengular to subrounded, calcareous; little fine to coarse gravel; little slightly plastic silt; sage I caliche (1.0'-3.0').	vertical wells unstable					
-1	4 5 6 8		GP- GC	dense	SANDY GRAVEL, dark brown, fine to coarse, poorly graded, dry, subengular, calcereous; little medium to coarse subengular to subrounded sand; trace medium plastic clay; stage II caliche (3.0'-10.0').	vertical wells stable	74	19	7		
-	10-		$\square$		TOTAL DEPTH 10.0' (3.0m)		1				

SURFACE ELEVATION: 5400' (1848m) SURFICIAL GEOLOGIC UNIT: A51

> LOG OF TEST PIT MD-P-19 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 1000

F1 60 RE II - 4 - 19

ugro national inc.

USAF-2

DULK SAMPLE	METERS OF	PTH 1334	LITHOLOGY	uscs	<b>ONS</b>   STENCY	SOIL DESCRIPTION	REM	ARKS	AN	ALY:	18		_
78	₩ 0	1 - 2 - 3 -	n (in the state of	sc	medium dense	CLAYEY SAND, light brown, fine to coarse, poosty graded, slightly moist to moist, subengular to subrounded, calcareous; some fine to coarse gravel; little to some medium plastic clay; stage [] caliche (2.0'-10.0'); trace cobbles to 12" size (3.5'-6.0').					F1	LL	
		4- 5-			dense			i wells					
	- 2	8 - 7 - 8 -		GC	dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, slightly moist, subengular to subrounded, calcareous; some fine to coarse sand; little medium plastic clay.			54	31	15		
	- 3	10-				TOTAL DEPTH 10.0' (3.0m)							

LOG OF TEST PIT MD-P-20 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - DOO FIGURE

DULK SAMPLE	METERS A	PTH	LITHOLOGY	USCS	C <b>ons</b> i s tenct	SOIL DESCRIPTION	REMARKS		IEV ALYS			
100		FEET	117		CONS			88	SA	FI	LL	[
	- 1	2 -		SM	medium dense	SILTY SAND, light brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; some slightly plastic slit; stage I caliche (1.0'-4.0').		4	55	41		
	-	5 -		GМ	dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, slightly moist, sub-angular to subrounded, calcareous; some fine to coarse sand; trace to little slightly plastic silt; stage II caliche (4.0'-10.0'); trace cobbles to 12" size.	vertical walls stable	57	25	18		
	-2	7-8-9-		GP	dense							
	[	10-		 		TOTAL DEPTH 10.0' (3.0m)	<b></b>	1				

SURFICIAL BEGLORIC UNIT: ASY

LOG OF TEST PIT MD-P-21 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 800

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FIGURE II-4-21

USAF-21

FN-TR-44

BULK SABPLE	METERS	PTH	LITHOLOGY	USCS	C <b>ons</b> istency	SOIL DESCRIPTION	REMARKS		M LY:	1E 5   3	
1706	1	FEET	111		CONS			GR	SA	FI	LLP
	- 1	3-4-5-7-8-9-10-		GP- GM	medium dense	SANDY GRAVEL, light brown, fine to coarse, poorly graded, dry to slightly moist, sub- angular to subrounded, calcareous; some fine to coarse sand; trace slightly plastic slit; stags I caliche (1.0'-8.0'); trace cobbles to 9" size.	verticel wells stable				
1	{		1	,		TOTAL DEPTH 10.0' (3.0m)		- }	1	}	11

SURFACE ELEVATION: 5080' (1542m) SURFICIAL BEOLOGIC UNIT: A5y

> LOG OF TEST PIT MD-P-22 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMD

fleure II - 4 - 22

<u>vero national inc.</u>

USAF-21

LOG OF TEST PIT MD-P-23 OPERATIONAL BASE SITE MILFORD, UTAH

MX TING INVESTIGATION
DEPARTMEN OF THE AIR FORCE - BMG

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VORO NATIONAL

20 FEB 81

112 A

LOG OF TEST PIT MD-P-24 OPERATIONAL BASE SITE

MILFORD, UTAH
MX SITING INVESTIGATION

DEPARTMENT OF THE AIR FORCE - BMS

FI CURE II - 4 - 24

**VORD NATIONAL** 

-74.2%

20 FEB 81

FN-TR-44

BULK SAMPLE	METERS M	FEET =	LITHOLOGY	USCS	OMSI S TENCY	SOIL DESCRIPTION	REMARKS	AN	IEV ALY:	118	
	0	1 -	п	SM	medium dense	SILTY SAND brown, fine, poorly graded, molet, subengular to subrounded, caleareous; same nonplastic silt.				FI 44	2
	- 1	3-4-		CL	fiem	SANDY CLAY, brown, moist, medium plastic, calcareous; little fine sand.	vertical wells stable				
	- 2 -	7 8 9		sc	dense	CLAYEY SAND, light brown, fine, poorly graded, moist, subangular to subrounded, calcareous; some medium plastic clay.		o	67	33	
	- 3	10-				TOTAL DEPTH 10.0' (3.0m)					

SURFACE ELEVATION: 5020' (1508m) SURFICIAL REGLOSIC UNIT: A5y/A4o

> LOG OF TEST PIT MD-P-25 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

F1 6URE II - 4 - 25

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US AF-

FN-TR-44 ONSISTENCY LITHOLOGY SIEVE SOIL DESCRIPTION REMARKS ANALYSIS BR SA FI LL PI CLAY, brown, molet, alightly plantle, calcereous; trace fine subangular to sub-rounded send. 31 firm stable CL - 2 stiff hard TOTAL DEPTH 10.0' (3.0m) SURFACE ELEVATION: 5010' (1506m) SURFICIAL BEOLDBIC UNIT: A5y/A4o LOG OF TEST PIT MD-P-26 **OPERATIONAL BASE SITE** MILFORD, UTAH FIGURE MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG II-4-26 20 FEB 81 US.3F-21

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - SMO

II - 4 - 27

UBRO NATIONAL INC.

USAF-21

MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG

FIGURE

US AF-21

BULK SAMPLE	METERS	FEET HIG	LITHOLOGY	SOSA	C ONSISTENCY	SOIL DESCRIPTION	REMARKS	- 1	ALY			
	<b>3</b>	3-	3 ************************************	SM	mediu <i>m</i> dense	SILTY SAND, light brown, fine to coerse, poorly graded, alightly moist, subengular to subrounded, calcareous; some nonplastic silt; trace fine gravel; stage I caliche (1.0'-6.0').	vertical walls stable	6		24	LL	<b>P</b>
	- 2	7-		SP	loose	GRAVELLY SAND, light brown, fine to coarse, poorly graded, slightly moist, sub-angular to subrounded, calcareous; some fine to coarse gravel.	vertical walls					
	- 3	9 -		sc	loose	CLAYEY SAND, brown, fine to coarse, poorly graded, moist, subangular to sub-rounded, calcareous; some medium plastic clay.						
						TOTAL DEPTH 10.0' (3.0m)						

LOG OF TEST PIT MD-P-29 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BND FIRURE

USAF-21

Note that will select the property of the prop

BULK SAMPLE	WETERS F	FEET #7	LITHOLOGY	nscs	CONS; S TENCY	SOIL DESCRIPTION	REMARKS	AN	ALY:	818		
ING	-1	2 - 3 -	ח	SP- SC	dense	GRAVELLY SAND, light brown, fine to coarse, poosty to well graded, slightly moist to moist, subengular to subrounded, calcareous; some fine to coarse gravel; trace slightly plastic clay; stage II caliche (1.0'-4.5'); stage I caliche (4.5'-10.0').		GR	SA	FI	LL	
	- 2	5 - 6 -		sw	medium dense		vertical wells stable					
	- 3	8 -		sw- sc	dense							
		10-				TOTAL DEPTH 10.0' (3.0m)		1				

SURFACE ELEVATION: 5280' (1587m) SURFICIAL REOLOGIC UNIT: A51

LOG OF TEST PIT MD-P-31 OPERATIONAL BASE SITE MILFORD, UTAH

MK SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG FIGURE

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2 2	TH E	LITHOLOGY	uscs	C ONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	 S 1 S		
	133 0 1 2 3 4 5	ONLIT	SA SM	SIS NO D	GRAVELLY SAND, light brown to brown, fine to coarse, poorly graded, dry to slightly moist, subengular to subrounded, calcareous; some fine to coarse grave; trace nonplastic silt; stage II caliche (1.0'-10.0').	vertical wells	<u> </u>	 <i>F</i> 1	LL	•
-2	7-			medium dense						
	9 –			dense						

SURFACE ELEVATION: 5440' (1635m) SURFICIAL BEOLOGIC UNIT: A5i

The second of the second secon

LOG OF TEST PIT MD-P-32 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

FISURE II - 4 - 32

UBRO NATIONAL INC.

BULK SAMPLE	ETERS 30	FEET H	LITHOLOGY	uscs	CONSISTENCY	SOIL DESCRIPTION	REMARKS	AN	IEV	118		
	5	1 -		GP- GM	dense	SANDY GRAVEL, gray, fine to coarse, poorly graded, dry, subengular to subrounded, calcareous; some fine to coarse sand; trass silt; stage II callahe (1.0'-6.0').			<b>40</b>	8	ı	9
	-1	3-		SM	dense	SILTY SAND, light brown, fine to coarse, poorly graded, slightly moist, sub- engular to subrounded, calcareous; some nonplastic slit; some fine to coarse gravel; stage III caliche (6,0'-7,0').	vertical walls stable	22	45	33		
	- 2	7 8			very dense	TOTAL DEPTH 7.0° (2.1m)	cementation at 7.0' exceeded capacity of Case 580C backhoe					
	- 3	10-										

SURFACE ELEVATION: 5440 (1635m) SURFICIAL SEOLOGIC UNIT: A5i

> LOG OF TEST PIT MD-P-33 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMD

FIGURE 11-4-3

UGRD NATIONAL, INC.

FN-TR-44 DASISTENCY SIEVE NE TERS SOIL DESCRIPTION REMARKS ANALYSIS GR SA FI LL PI CLAYEY GRAVEL, light brown, fine to coeres, poorly graded, slightly moles, subangular to subrounded, calcareous; some medium plastic clay; some fine to coarse sand; stage II caliche (1.0'-10.0'). 34 32 34 GRAVELLY SAND, brown, fine to coarse, poorly graded, moist, subengular to submedium rounded, calcareous; some fine to coarse dense gravel; trace silt. vertical wells stable 8 - 2 1\_ SPdense SM 8 TOTAL DEPTH 10.0' (3.0m). SURFACE ELEVATION: 5340' (1606m) SURFICIAL REOLOGIC UNIT: A5i LOG OF TEST PIT MD-P-34 OPERATIONAL BASE SITE MILFORD, UTAH FISURE MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG II - 4 - 34

20 FEB 81

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LOG OF TEST PIT MD-P-36 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - CMO

20 FEB 81

FN-TR-44

TUGRO NATIONAL INC

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FIGURE

BULK SAMPLE	WETERS A	FEET	LI THOLOGY	USCS	C <b>ons</b> istency	SOIL DESCRIPTION	REMARKS	SIEVE ANALYSIS	
28	0	0 1 2 3 3	11	SP- SM	dense	GRAVELLY SAND, light brown, fine to coerse, poorly graded, slightly moist to moist; subengular to subrounded, calcareous; some fine to coerse gravel; trese nonplettic slit to medium plestic clay; stage II caliche (1.0'-10.0').		GR SA FI	
	-2	5 5 8 9		SP- SC	dense		vertical wells stable		
	- 3	10-				TOTAL DEPTH 10.0" (3.0m)			

SURFACE ELEVATION: 5200'(1562m) SURFICIAL SEOLDSIC UNIT: A5i/A5y

> LOG OF TEST PIT MD-P-36 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - SMO

FI & URE 1 - 4 - 36

UERO NATIONAL INC.

	FEET	SP	GOOSE	Interbedded leyers of SANDY GRAVEL and GRAVELLY SAND:  SANDY GRAVEL (GP): light brown, fine to coarse, poorly graded, moist, subengular to subrounded, calcareous; some fine to coarse sand.  GRAVELLY SAND (SP): gray to light brown fine to coarse, poorly graded, moist, sub-angular to subrounded, calcareous; little to some fine to coarse gravel; stage I caliche (1.0'-10.0').	vertical walls unstable		\$A 35	F1 4	
111.	4-					61	35		
- 2	7-	GP.	medium dense		vertical walls stable				
3 ,0	9 -	SP	medium dense	TOTAL DEPTH 10.0' (3.0m)					

SURFACE ELEVATION: 5200 (1562m) SURFICIAL GEOLOGIC UNIT: A5i/A5y

> LOG OF TEST PIT MD-P-37 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 1000

FI SURE II - 4 - 37

VORD NATIONAL I

USAF

BULK SAMPLE	METERS AN	FEET HT	LITHOLOGY	USCS	ONS) S TENCY	SOIL DESCRIPTION	REMARKS	AN	 15	_
3	0	1 -	n	sc	dense	CLAYEY SAND, light brown, fine to coarse, poorly graded, moiet, subengular to subrounded, calcareous; some medium plastic clay, stage II caliche (1.0'-2.0'); stage II caliche (2.0'-10.0').			<b>FI</b>	P
	<b>-</b> 1	3 4 5	77777			GRAVELLY SAND, gray, fine to coarse, poorly graded, moist, subengular to subrounded, calcareous; some fine to coarse gravel.	vertical walls stable			
	- 2	7~		SP	medium dense					
	- 3	9 -				TOTAL DEPTH 10.0' (3.0m)				

SURFICIAL GEOLOGIC UNIT: A51

LOG OF TEST PIT MD-P-38 **OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - MID FIGURE

USAF-2

SURFACE ELEVATION: 5300' (1593m) SURFICIAL REGLOSIC UNIT: A51

> LOG OF TEST PIT MD-P-39 OPERATIONAL BASE SITE MILFORD, UTAH

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USAF-2

MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG

FIGURE II - 4 - 41

SURFACE ELEVATION: 5210' (1568m) SURFICIAL BEOLOGIC UNIT: A1

> LOG OF TEST PIT MD-P-42 OPERATIONAL BASE SITE MILFORD, UTAH

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FIGURE II - 4 - 42

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BULK SAMPL	METERS	FEET	LITHOLOGY	nscs	CONSISTENCY	SCIL DESCRIPTION	REMARKS	ANA	LYS IS	1
a l	0	0	<b>.</b>		NO 3	SILTY SAND, light brown, fine to coarse, poorly graded, moist, subangular to sub-rounded, calcareous; little slightly plastic		GR	SA FI	LL
	<b>-</b>	2 -			medium dense	silt; trace fine to coarse gravel; stage I caliche (1.0'-2.0'); stage II caliche (2.0'-10.0').				
	- 1	3 - 4 - 5 -	<b>**</b>	SM	dense		vertical walls stable			
	- 2	8 -				GRAVELLY SAND, tight brown, fine to coarse, poorly graded, moist, subangular to subrounded, calcareous; some fine to coarse gravel.				
	-	8 <b>-</b> 9 -		SP	medium dense					
	- 3	10-				TOTAL DEPTH 10.0' (3.0m)	*			
SURF	AUE ICIA	E LE V	ATION: 5250 OLOBIC UNIT:	r (15 A	/5m) 1		G OF TEST PIT I ERATIONAL BAS MILFORD, UTA	SE SIT		

DEPARTMENT OF THE AIR FORCE - BMG

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FN-TR-44 DEPTH SIEVE nscs METERS SOIL DESCRIPTION REMARKS ANALYS IS er sa fi LL Pi GRAVELLY SAND, light brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; little fine to course gravel; little nonplastic slit; stage I caliche (1.0'-2.5'); stage II caliche medium (2.5'-10.0'); occasional cobbles to 12" dense size. 2 stable 5 SM - 2 10 TOTAL DEPTH 10.0' (3.0m) SURFACE ELEVATION: 5300' (1593m) SURFICIAL BEOLOGIC UNIT: A51

> LOG OF TEST PIT MD-P-44 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

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FN-TR-44 SIEVE WETERS REMARKS AMALYSIS SOIL DESCRIPTION OR SA FI LL PI GRAVELLY SAND, light brown, fine to coarse, poorly graded, moist, subangular to subrounded, calcareous; some fine to coarse gravel; little medium pleatic day to trace silt; stage II caliche (1.0'-6.5'); stage I caliche (6.5'-10.0'). 34 46 20 vertical wells stable . 2 medium SP dense TOTAL DEPTH 10.0' (3.0m) SURFACE ELEVATION: 5450' (1638m) SURFICIAL BEOLOGIC UNIT: A5i LOG OF TEST PIT MD-P-46 **OPERATIONAL BASE SITE** MILFORD, UTAH FIGURE MX SITING INVESTIGATION II - 4 - 46 DEPARTMENT OF THE AIR FORCE - 8MO 20 FEB 81

FN-TR-44

MISISTENCY LITHOLOGY · SIEVE SOIL DESCRIPTION REMARKS ANALYS IS OR SA FI LL PI SILTY SAND, light brown, fine to medium, poorly graded, slightly moist, subangular to subrounded, calcareous; some nonplastic silt; occasional cobbles and boulders at 10.0°. 74 25 vertical wells dense stable 10 TOTAL DEPTH 10.0' (3.0m) SURFACE ELEVATION: 5340' (1628m) SURFICIAL GEOLOGIC UNIT: A5i LOG OF TEST PIT BL-P-15 OPERATIONAL BASE SITE MILFORD, UTAH FIGURE MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - MIG 20 FEB 81 USAF-21

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FN-TR-44 SOIL DESCRIPTION REMARKS ANALYS IS GR SA FI LL PI CLAYEY SAND, light brown, fine to course, poorly graded, dry, subengular to subrounded, calcareous; some slightly plastic alay; stage III. caliche (1.0'-3.5'). GRAVELLY SAND, dark brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coerse gravel. - 2 SP dense TOTAL DEPTH 10.0' (3.0m) SURFACE ELEVATION: 5480' (1670m) SURFICIAL GEOLOGIC UNIT: A5i LOG OF TEST PIT BL-P-16 **OPERATIONAL BASE SITE** MILFORD, UTAH FIGURE MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - MO

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METERS OF	- 1	L!THOLOGY	SOSO	ONS; S TENCY	SOIL DESCRIPTION	REMARKS	S AMA	IEV	
BUCK	FEET	111		SHOS		<u> </u>	BR	SA	FI
- 1	2-3-4-		sc	dense	CLAYEY SAND, brown, fine to cearse, poorly graded, slightly moist, angular to subangular, categorous; some medium places clay; little fine gravel; stage III calishe (1.0'-2.5'); trace cobbles to 6" size.	vertical walls stable	13	53	34
- 2	7-8-		SP	medium dense	GRAVELLY SAND, dark brown, fine to coerse, poorly graded, dry, angular to sub-angular, calcareous; some fine to coerse gravel; trace colpbles to 10" size.	vertical walls unstable			
-3	10-		_		TOTAL DEPTH 10.0 (3.0m)		$\left. \left\{ \ \right  \right.$		
IURFACE E	LEY/ GE1	ATION: 5800' DLOBIC UNIT:	(170 A5i	7m)	LO	G OF TEST PIT E	SE SI		
						IG INVESTIGATION THE AIR FORCE -	4	-	

FN-TR-44 DEPTH LITHOLOGY HSJSTENCY SIEVE SOIL DESCRIPTION REMARKS AÑALYS IS GR SA FI LL PI SILTY SAND, brown, fine to ecorus, poorly graded, slightly molet, subengular to sub-rounded, calegreous; some nemplestic site. I 1 dense 2. 1 - 1 GRAVELLY SAND, dark brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine gravel; stage III caliche (3.5'-6.0'). rertical walls stable SP dense 10. TOTAL DEPTH 10.0' (3.0m) SURFACE ELEVATION: 5350 (1631m) SURFICIAL GEOLOGIC UNIT: A5i LOG OF TEST PIT BL-P-18 **OPERATIONAL BASE SITE** MILFORD, UTAH FIGURE MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG II-4-51 20 FEB 81 VSAF-21

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FN-TR-44 BULK SAMPLE SIEVE SOIL DESCRIPTION REMARKS ANALYS 18 OR SA FILL PI CLAYEY SAND, brown, fine to coarse, poorly graded, slightly moist, subangular to subrounded, calcareous; little slightly plastic clay; stage II callche (1.5'-4.5'). vertical walls stable GRAVELLY SAND, dark brown, fine to coarse, poorly graded, dry, subangular to subrounded, calcareous; some fine to coerse subengular gravel; occasional cobbles to 6" SP TOTAL DEPTH 10.0' (3.0m) SURFACE ELEVATION: 5300' (1815m) SURFICIAL REGLORIC UNIT: A51 LOG OF TEST PIT BL-P-19 OPERATIONAL BASE SITE MILFORD, UTAH FIGURE MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - MIS II-4-52 20 FEB 81

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FN-TR-44 BULK SABPLE DNS STENC SIEVE SOIL DESCRIPTION REMARKS ANALYS IS GR SA FI LL PI SILTY SAND, light brown, fine to coarse, poorly graded, dry, subengular to subrounded, calcareous; little nonplestic sit; trees gravel. 2 SM stable dense TOTAL DEPTH 5.0' (1.5m) rock at 5.0' exceeded capacity of case 580 C backhoe 10. SURFACE ELEVATION: 5440' (1658m) SURFICIAL BEOLOGIC UNIT: A5i LOG OF TEST PIT BL-P-20

OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMD

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FN-TR-44 SIEVE **WETERS** REMARKS ANALYS IS SOIL DESCRIPTION GR SA FI LL PI SILTY SAND, light brown, fine to medium, poorly graded, moist, subangular to subrounded, calcareous; some nonplastic silt; stage II caliche (2.0'-5.0'). 2 50 48 vertical wells SM dense stable - 2 **TOTAL DEPTH 10.0' (3.0m)** 

SURFACE ELEVATION: 5200' (1584m) SURFICIAL GEOLOGIC UNIT: A5i

> LOG OF TEST PIT BL-P-21 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG

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SECTION 5.0

EXPLANATION OF LABORATORY TEST RESULTS

#### 5.0 EXPLANATION OF LABORATORY TEST RESULTS

Laboratory test results are presented in this section. Table II-5-1 contains a summary of laboratory test results. This table contains results of sieve analysis; plasticity data; insitu dry unit weight, moisture content, degree of saturation, and void ratio for drive and Pitcher samples; results of compaction tests; and specific gravity of solids. Other tests such as triaxial compression, unconfined compression, direct shear, consolidation, chemical, and California Bearing Ratio (CBR) are indicated on the table. Tables II-5-2 through II-5-4 and Figures II-5-1 through II-5-5 present results of triaxial compression, unconfined compression, direct shear, consolidation, chemical, and CBR tests.

All tests were performed in general accordance with the American Society for Testing and Materials (ASTM) procedures. The following list presents the ASTM designations for the tests performed during the investigation.

Type of Test	ASTM	Designations
Particle Size Analysis	D	422-63
Liquid Limit	D	423-66
Plastic Limit	D	424-59
Unit Weight	D	2937-71
Moisture Content	D	2216-71
Compaction	D	1557-70
Specific Gravity of Solids	D	854-58
Triaxial	D	2850-70
Unconfined Compression	D	2166-66
Direct Shear	D	3080-72
Consolidation	D	2435-70
Test for Alkalinity (pH)	D	1067-70
Water Soluble Sodium	D	1428-64
Water Soluble Chloride	D	512-67
Water Soluble Sulphate	D	516-68
Water Soluble Calcium	D	511-72
Calcium Carbonate	D	1126-67
California Bearing Ratio (CBR)	D	1883-73

Explanation for the tables and figures presented in this section are as follows:

- A. Activity Number Boring, trench, or test pit sample designation.
- B. Sample Number Prefix indicates the type of sample; explanation is at the bottom of the table.
- C. Sample' Interval This is the depth range measured from ground surface over which the sample was obtained.
- D. Percent Finer by Weight Presents the results of laboratory particle-size analysis (ASTM D 422-63) performed on representative soil samples at the depth indicated. The numbers represent the percent (by dry weight) of the total sample weight passing through each sieve size indicated.
- E. Atterberg Limits (ASTM D 423-66 and D 424-59) -
  - LL Liquid Limit, the water content (as percent of soil dry weight) corresponding to the arbitrary limit between the liquid and plastic states of consistency of a soil (ASTM D 423-66).
  - PL Plastic Limit, the water content corresponding to an arbitrary limit between the plastic and the semisolid state of consistency of a soil (ASTM D 424-59).
  - PI Plasticity Index, numerical difference between the liquid limit (LL) and the plastic limit (PL) indicating the range of moisture content within which a soil-water mixture is plastic.
  - NP Nonplastic.
- F. USCS Unified Soil Classification Symbols are given here; see Table II-2-1 in Section 2.0, "Boring Logs", for complete details of USCs system.

- G. In Situ Presents results of tests on drive and Pitcher samples.
  - Dry Unit Weight indicates dry unit weight of soil determined as per ASTM D 2937-71.
  - Moisture Content weight of water reported in percent of dry weight of soil sample (ASTM D 2216-71).
  - Saturation the degree of saturation in a soil sample is defined as the ratio (in percent) of the volume of water to the volume of all voids in the soil.
  - Void Ratio the numerical ratio of the volume of voids to the volume of solids in a soil specimen.
- H. Compacted Indicates results of laboratory maximum dry density and optimum moisture content test as per ASTM D 1557-70.
- I. Specific Gravity of Solids (ASTM D 854-58) Indicates the ratio of 1) the weight in air of a given volume of soil solids at a stated temperature, to 2) the weight in air of an equal volume of distilled water at a stated temperature.
- J. Triaxial The triaxial compression tests were performed in accordance with the procedures of ASTM D 2850-70. The following explanations and definitions apply.

Triaxial Compression Test - a cylindrical specimen of soil is surrounded by a fluid in a pressure chamber and subjected to an isotropic pressure. An additional compressive load is then applied, directed along the axis of the specimen called the axial load.

Consolidated-Drained (CD) Test - a triaxial compression test in which the soil was first consolidated under an all-around confining stress (test chamber pressure) and was then compressed (and hence sheared) by increasing the vertical stress. "Drained" indicates that excess pore water

pressure generated by strains is permitted to dissipate by the free movement of pore water during consolidation and compression.

Consolidated-Undrained (CU) Test - a triaxial compression test in which essentially complete consolidation under the confining (chamber) pressure is followed by a shear test at constant water content.

Confining Pressure ( $\sigma_3$ ) - the isotropic chamber pressure applied to the soil specimen during consolidation and compression.

Maximum Deviator Stress  $(\sigma_1-\sigma_3)$  - the difference between the major and minor principal stresses in the specimen at failure. The major principal stress on the specimen is equal to the unit axial load plus the chamber pressure, and the minor principal stress on the specimen is equal to the chamber pressure.

Strain Rate – axial strain,  $\epsilon$ , at a given stress level is defined as the ratio of the change in length ( $\Delta L$ ) of the specimen to the original length of the specimen ( $L_0$ ). The rate of strain was controlled during the test so that this ratio increased at equal increments for each minute of testing.

Back Pressure - pressure in excess of atmospheric applied to the pore water of a soil sample. Back pressure is usually applied to 1) increase saturation of the sample, or 2) simulate the actual in situ pressure regime.

- K. Unconfined Compression Test procedures were as described in ASTM D 2166-66. Unconfined compressive strength is defined as the load per unit area at which an unconfined prismatic or cylindrical specimen of soil will fail in a simple compression test. In these methods, unconfined compressive strength is taken as the maximum load attained per unit area or the load per unit area at 20 percent axial strain, whichever occurred first during the performance of a test.
- L. Direct Shear The procedures of ASTM D 3080-72 were followed for direct shear testing. In this test, soil under an

applied normal load is stressed to failure by moving one section of the soil container (shear box) relative to the other section. Normal stress is the value of load per unit area acting perpendicular to the plane of shearing. Maximum shear strength is defined as the maximum resistance (ksf) of a soil to shearing (tangential) stresses.

- M. Consolidation (ASTM D 2435-70) A consolidation test is a test in which a cylindrical soil specimen is laterally confined in a ring and compressed between porous plates. The term "consolidation", as used here, indicates the gradual reduction in volume of the soil mass resulting from an increase in compressive stress (axial load per unit area).
- N. Chemical The chemical tests performed on soil samples included: pH; water soluble sodium, chloride, sulphate, calcium; and calcium carbonate content. pH is an index of the acidity or alkalinity of a soil in terms of the logarithm of the reciprocal of the hydrogen ion concentration.

  ASTM test procedure designations for these chemical tests are included in the list on the first page of these Explanations.
- O. CBR California Bearing Ratio (CBR) is the ratio (in percent) of the resistance to penetration developed by a subgrade soil to that developed by a standard crushed-rock base material. The procedures for conducting a CBR test were as outlined in ASTM D 1883-73. The materials tested

for CBR were also analyzed for particle-size distribution (ASTM D 422-63) and compaction characteristics (ASTM D 1557-70). The term "percentage of maximum density" indicates the ratio (as a percentage) of the compacted sample dry unit weight to maximum dry density obtained in the laboratory from ASTM D 1557-70, "Moisture-Density Relations of Soils Using 10-Pound (4.5-kg) Hammer and 18-inch (457-mm) Drop."

				<u>T</u>					PERCEI	T FIN	ER BY V	EIGHT		
ACT I VI TY Number	.E SR (a)	SAMPLE I	NTERVAL		S	TANDARO	SIEV	E OPEN	ING		U S	STAN	DARD	SIEVE
ACT I V I	SAMPLE NUMBER			BLDRS	COBE	LES		GRA	VEL			SA	ND	
2 Z	S ₹	FEET	METERS	24"	12"	6"	3"	1½"	3/4"	3/8"	4	10	40	100
MD-B-1	D-2	1.7 - 2.5	0.52 - 0.76											
	D-4	4.2 - 5.0	1.28 - 1.52							100	97	90	51	23
	D-7	8.2 - 9.0	2.50 - 2.74											
	D-9	15.2 · 16.0	4.63 - 4.88					100	91	86	75	62	29	11
	D-11	22.2 - 23.0	6.77 - 7.01						100	93	85	68	26	12
	D-12	<b>28</b> .2 · <b>29</b> .0	8.60 - 8.84										<u> </u>	
	D-13	32.2 - 33.0	9.81 - 10.06											$\perp$
	D-14	37.2 38.0	11.34 - 11.58					100	90	82	72	60	27	12
	D-15	41.2 - 42.0	12.56 - 12.80										Ĺ	
	D-16	45.2 - 46.0	13.78 - 14.02											$\perp$
	P-17	49.6 - 50.2	15.12 - 15.30								100	97	45	14
	P-17	49.6 - 50.2	15.12 - 15.30											-
MD-B-2	D:2	1.5 - 2.3	0.46 - 0.70	1					<del> </del>	<b></b> -	<u> </u>	<u> </u>		+-
·	·D-3	3.7 - 4.5	1.13 - 1.37	1				<u> </u>	100	78	65	51	30	18
	D-4	6.2 - 7.0	1.89 - 2.13	1		l		<del>                                     </del>	100	87	75	63	48	35
<u> </u>	D-5	10.2 - 11.0	3.11 - 3.35	1				<u> </u>						
<u> </u>	0.0	15.2 - 16.0	4.63 - 4.88	1								l		_
	D-7	20.2 - 21.0	6.16 - 6.40					<u> </u>						1
	D-8	25.2 26.0	7.68 - 7.92	1				100	98	94	8	63	23	13
	D-9	30.2 - 31.0	9.20 9.45	1										1
	D-10	35.2 - 36.0	10.73 - 10.97											
	D-11	40.2 - 41.0	12.25 - 12.50	1				100	92	86	82	77	36	39
·	D-13	50.2 - 51.0	15.30 - 15.54	1									1	1
				1					<u> </u>	l				
MD-B-3	P-1	1.7 - 2.5	0.52 - 0.76	1										100
	P-4	6.2 - 7.0	1.89 - 2.13										100	
	P.4	6.2 - 7.0	1.89 - 2.13											
	P.7	10.5 - 11.1	3.20 - 3.38					<u> </u>			<u> </u>			
	P.7	10.5 - 11.1	3.20 - 3.38											100
	P-7	11.1 - 11.7	3.38 - 3.57											
	P-8	15.0 - 15.8	4.57 - 4.82								100	98	93	72
L	P-9	19.5 - 20.3	5.94 - 6.19	<u> </u>						L	<u> </u>	L		تــــــــــــــــــــــــــــــــــــــ
	P-10	24.1 - 24.9	7.35 - 7.59	<u> </u>					<u> </u>					
L	P-10	24.9 · 25.5	7.59 - 7.77								L	<b></b>		
	P. N	29.7 - 30.5	9.05 - 9.30									100	60	3
L	P-11	29.7 - 30.5	9.05 - 9.30		L			<u> </u>	<u> </u>			100	78	3
	P-12	36.2 - 36.8	11.03 - 11.22										oxdot	
L	P-12	36.2 - 36.8	11.03 - 11.22	1			L			L		100	97	9
	P-13	40.2 - 41.0	12.25 - 12.50	1		<u> </u>								
	P-13	41.0 - 41.8	12.50 - 12.74											
	P-14	45.0 - 45.8	13.72 - 13.96											
	P-14	45.0 - 45.8	13.72 - 13.96					1	I	l	· ·	I .	100	

(a) Sample types

(c) USCS - Unified Soil Classification System

SS - Standard split spoon

P - Pitcher

(d) \* Indicates that test has been performed and results are included in this report

D - Fugro Drive

B, b - Bulk

(b) NP - Not Plastic

											SC	107.2	1717	8.9	42.3	0.57	
0	97	90	51	23	16						SC	103.1	1650	10.8	46.1	0.63	
					I -						SC	113.5	1818	4.7	26.0	0.49	
6	75	62	29	11	7						SP-SM	117.8	1887	9.5	59.9	0.43	
3	85	68	26	12	9						SW-SM	112.5	1802	6.4	34.9	0.50	
											SW-SM	110.4	1767	5.6	28.7	0.53	
											SW-SM	1117	1789	4.9	28.8	0.51	
2	72	60	27	12	8						SP-SM	118.6	1900	8.9	57.0	0.42	
					·						SP-SM	109.7	1757	5.6	28.0	0.54	
											SM	109.	1754	17.8	89.2	0.54	
	100	97	45	14	9						SW-SM	109.	1756	11.1,	55.8	0.54	
											SW-SM	103.0	1650	7.9	33.4	0.64	
											SM	89.8	1439	7.5	23.1	88.0	
28	<b>6</b> 5	51	30	18	13					NP	SM	116.3	1863	4.9	29.9	0.45	
37	75	63	48	35	26			22	18	4	SM-SQ	114.7-	1837	7.9	45.2	0.47	
										NP.	SM	103.9	1664	5.1	22.1	0.62	
											SP	110.6	1772	8.0	41.6	0.52	
											SM	110.8	1775	9.9	51.2	0.52	
<b>9</b> 4	8	63	23	13	10						SW-SM	111 !	1780	8.4	43.9	0.52	
											SM	117.9	1889	7.0	43.9	0.43	
											SP	117.2	1878	9.3	57.5	0.44	
6	82	77	56	39	31						SM	112.8	1807	#F35	63.0	0.49	
											SP	113.8	1823	10.3	58.1	0.48	
				100	99			50	28	22	СН	57.3	916	18.6	25.9	1.94	
			100	98	97			61	35	26	МН	79.2	1269	22.4	53.8	1.13	
											MH	93.1	1491	22.0	73.4	0.81	
											CH	114.7	1837	10.6	60.9	0.47	
				100	99			56	26	30_	СН	83.8	1342	27.0	72.0	1.01	
											ÇH	94.4	1512	22.1	76.1	0.78	
	100	98	93	72	38					NP	SM	105.0	1682	8.7	38,7	0.61	
											SM	95.7	1533	11.5	40.8	0.76	
	L	L									SM	106.9	1713	13.9	65.1	0.58	
											SM	106.6	1708	18.9	88.1	0.58	
		1100	60	38	33						SM	98.7	1581	13.4	51.4	0.71	
		100	78	39	<b>%</b> 5.						SM	103.0	1650	11.6	49.0	0.64	
											ML	102.5	1642	22.9	96.6	0.64	
		100	97	96	95	52	20	46	28	18	ML	85.3	1367	32.1	88.9	0.97	
								31	19	12	CL	92.4	1480	21.5	70.6	0.82	
											CL	99.3	1591	24.9	96,7	0.70	
									·	1	71	100 1	TROM	22 B	00 1	1 68	

89.2 0.54 55.8 0.54 33.4 0.64	28.0	0.54	ļ	J	J I	1	i 1	1 1				
55.8       0.54         33.4       0.64				<del>                                     </del>	<b></b>							$\vdash \dashv$
33.4       0.64       •         23.1       0.88       •         29.9       0.45       •         45.2       0.47       •         22.1       0.62       •         41.6       0.52       •         51.2       0.52       •         43.9       0.52       •         43.9       0.43       •         57.5       0.44       •         63.0       0.49       •         58.1       0.88       •         25.9       1.94       •         53.8       1.13       •         73.4       0.81       •         60.9       0.47       •       •         72.0       1.01       •       •         76.1       0.78       •       •         38.7       0.61       •       •         40.8       0.76       •       •         65.1       0.58       •       •         88.1       0.58       •       •         51.4       0.71       •       •         49.0       0.64       •       •					-							
23.1       0.88         29.9       0.45         45.2       0.47         22.1       0.62         41.6       0.52         51.2       0.52         43.9       0.52         43.9       0.43         57.5       0.44         63.0       0.49         58.1       0.48         25.9       1.94         53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         88.1       0.58         51.4       0.71         49.0       0.64				<del> </del>								$\vdash$
29.9       0.45         45.2       0.47         22.1       0.62         41.6       0.52         51.2       0.52         43.9       0.52         43.9       0.43         57.5       0.44         63.0       0.49         58.1       0.48         25.9       1.94         53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         88.1       0.58         51.4       0.71         49.0       0.64	33.4	0.04										$\vdash$
29.9       0.45         45.2       0.47         22.1       0.62         41.6       0.52         51.2       0.52         43.9       0.52         43.9       0.43         57.5       0.44         63.0       0.49         58.1       0.48         25.9       1.94         53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         88.1       0.58         51.4       0.71         49.0       0.64	421	0.00	<del></del>	<del> </del>	-							$\vdash$
45.2					-						_	$\vdash$
22.1       0.62         41.6       0.52         51.2       0.52         43.9       0.52         43.9       0.43         57.5       0.44         63.0       0.49         58.1       0.48         25.9       1.94         53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         88.1       0.58         51.4       0.71         49.0       0.64												$\vdash$
41.6       0.52         51.2       0.52         43.9       0.52         43.9       0.43         57.5       0.44         63.0       0.49         58.1       0.48         25.9       1.94         53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         88.1       0.58         51.4       0.71         49.0       0.64											_	
51.2       0.52         43.9       0.52         43.9       0.43         57.5       0.44         63.0       0.49         58.1       0.48         25.9       1.94         53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         88.1       0.58         51.4       0.71         49.0       0.64											•	┝─┥
43.9       0.52       •         43.9       0.43       •         57.5       0.44       •       •         63.0       0.49       •       •         58.1       0.48       •       •         25.9       1.94       •       •         53.8       1.13       •       •         73.4       0.81       •       •         60.9       0.47       •       •       •         72.0       1.01       •       •       •         76.1       0.78       •       •       •         38.7       0.61       •       •       •         40.8       0.76       •       •       •         65.1       0.58       •       •       •         51.4       0.71       •       •       •         49.0       0.64       •       •       •       •				<del>                                     </del>	ļ							<b>  </b>
43.9       0.43         57.5       0.44         63.0       0.49         58.1       0.48         25.9       1.94         53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         51.4       0.71         49.0       0.64					<b>├</b> —							<b></b>
57.5       0.44       •         63.0       0.49       •         58.1       0.48       •         25.9       1.94       •         53.8       1.13       •         73.4       0.81       •         60.9       0.47       •       •         72.0       1.01       •       •         76.1       0.78       •       •         38.7       0.61       •       •         40.8       0.76       •       •         65.1       0.58       •       •         51.4       0.71       •       •         49.0       0.64       •       •					ļ				•			┝─┤
63.0 0.49 • • • • • • • • • • • • • • • • • • •										<u> </u>		<b></b>
58.1       0.48         25.9       1.94         53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         88.1       0.58         51.4       0.71         49.0       0.64												<b></b>
25.9 1.94 53.8 1.13 73.4 0.81 60.9 0.47 72.0 1.01 76.1 0.78 38.7 0.61 40.8 0.76 65.1 0.58 88.1 0.58 51.4 0.71 49.0 0.64		0.49		<u> </u>					•			
53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         88.1       0.58         51.4       0.71         49.0       0.64	58.1	0.48		<u> </u>								
53.8       1.13         73.4       0.81         60.9       0.47         72.0       1.01         76.1       0.78         38.7       0.61         40.8       0.76         65.1       0.58         88.1       0.58         51.4       0.71         49.0       0.64												
73.4 0.81	25.9											$ldsymbol{ldsymbol{ldsymbol{eta}}}$
60.9 0.47	53.8	1.13										
60.9 0.47	73.4	0.81										
72.0 1.01	60.9	0.47								*		
76.1 0.78 • • • • • • • • • • • • • • • • • • •		1.01					•				*	
38.7     0.61       40.8     0.76       65.1     0.58       88.1     0.58       51.4     0.71       49.0     0.64	76.1						•					
65.1 0.58 88.1 0.58 51.4 0.71 49.0 0.64												
65.1 0.58 88.1 0.58 51.4 0.71 49.0 0.64				I								
88.1 0.58		0.58										
51.4 0.71 49.0 0.64	88.1	0.58										
49.0 0.64				1					*			
					<del>                                     </del>					•		

	<u> </u>								PERCEN	T FINE	R BY V	EIGHT		
<u>}</u>	E (# (a)	SAMPLE 1	NTERVAL		S	TANDARD	SIEV	E OPEN	NG		U S	STAN	DARD S	IEVE M
ACT I V I TY Number	SAMPLE Number			BLDRS	COBE	LES		GRA	VEL			AZ	ND	
¥ ₹	S =	FEET	METERS	24**	12"	6"	3"	1½"	3/4"	3/8"	4	10	40	100
MD-B-3	P-15	50.2 - 50.7	15.30 - 15.45											
	P-15	50.8 - 51.6	15.48 - 15.73									100	92	83
	P-15	51.6 - 52.5	15.73 - 16.00											
	P-16	60.0 - 60.8	18.29 - 18,53									100	95	41
	P-16	60.8 - 61.5	18,53 - 18,75											
<u></u>	P-17	70.0 · 70.8	21.34 - 21.58											
	P-18	80.0 - 80.8	24.38 - 24.63										L	<b> </b>
	P-19	91.0 - 91.8	27.74 - 27.98										L	L
<u> </u>	P-20	100.6 - 101.4	30.66 - 30.91	<b>_</b>								L	<b> </b> -	┞╌╌╂
MD-B-4	P-1	1.0 - 1.5	0.30 - 0.46										<del> </del>	<del>                                     </del>
H	P-2	3.5 - 4.3	1.07 - 1.31	<del></del>									<del> </del>	
	D-3	6.2 · 7.0	1.89 - 2.13	<b></b>									<b></b>	1
	P-4	9.0 - 9.8	2.74 - 2.99	-									<del>                                     </del>	
	P-5	15.1 - 16.0	4.60 - 4.88						100	98	94	88	79	68
	P.5	16.0 - 17.0	4.88 - 5.18						100	95	81	68	53	34
	P-6	20.3 - 21.6	6.34 - 6.58					100	95	92	75	60	45	29
	D-7	25.2 - 26.0	7.68 - 7.92											
	P-8	29.8 - 30.6	9.08 - 9.33											
	D-9	35.2 - 36.0	10.73 - 10.97						100	97	88	77	45	26
	D-10	40.2 - 41.0	12.25 - 12.50											
	P-11	45.3 - 46.1	13.81 - 14.05											
	D-12	51.2 - 52.0	15.61 - 15.85											
	D-13	60.2 - 61.0	18.35 - 18.59								100	99	90	71
	D-14	70.2 - 71.0	21.40 - 21.64						100	97	91	82	65	48
	D-15	80.2 - 81.0	24.44 - 24.69											
J	D-16	91.2 - 92.0	27.80 - 28.04									L		
	P-17	102.1 103.0	31.12 - 31.39									<u> </u>	L	
<b>]</b>	P-18	120.3 - 121.1	36.67 · 36.91						100	97	77	60	28	7
<b></b>	D-20	159.2 - 160.0	48.52 - 48.77										<u> </u>	
MD-B-5	D-1	0.2 - 1.0	0.06 - 0.30				<del> </del>	<u> </u>				├	<del> </del>	
- ···· · · ·	D-2	3.2 - 4.0	0.98 - 1.22	1								<del></del>	<del></del>	<del>   </del>
	D-3	6.2 · 7.0	1.89 - 2.13	<del>                                     </del>				<b></b> -	100	96	82	56	20	11
	P-4	10.9 - 11.7	3.32 - 3.57	<b>—</b>						100	99	96	63	31
	P-5	15.2 · 16.0	4,63 - 4.88											
	P-6	20.2 · 21.0	6.16 - 6.40	1				100	89	68	58	45	19	10
	D-7	25.2 - 26.0	7.68 - 7.92					100	92	71	56	39	17	11
	D-8	30.2 - 31.0	9.20 - 9.45											
	D-9	35.2 - 36.0	10.73 - 10.97	T										
	D-10	40.2 - 41.0	12.25 - 12.50											
	P-11	45.0 - 45.8	13.72 - 13.96											
	P-13	60.2 - 61.0	18.35 - 18.59											

(a) Sample types

(c) USCS - Unified Soil Classification System

SS - Standard split spoon

P - Pitcher

(d) \* Indicates that test has been performed and results are included in this report

D - Fugro Drive

B,b - Bulk

DIO - DUIN

(b) MP - Not Plastic

													0170				OMOCOT-			Т
BY W	EIGHT						4-	TEBBC	<b>.</b>			!	I-SITU				OMPACTE			1
U S	STAN	DARD S	IEVE N	10.	PART			TERBE			DRY	INIT	# L	5		MAX	MUM		l≌≥≝	1
	SAI	4D		SIL	T OR C	_	LIN	IITS (	(0)	USCS (c)	WEIG	BHT	MOISTURE Content (\$)	SATURATION (\$)	VOID RATIO	DRY DI	ENSITY	OPTIMUM Moisture (%)	SPECIFIC GRAVITY OF SOLIDS	l
4	10	40	100	200	.005	.001	L	PL	PI	(3)	(pcf)	(kg/m <sup>3</sup> )	2 5 °	SAT		(pcf)	(kg/m <sup>3</sup> )	등을	2 2 2	ł
	<del>-:- }</del>				.000					ML	85.6	1371	35.0	101.5	0.90		<del>                                     </del>		<del></del>	t
			92	72	26	7	33	27	6	ML	88.5	1418	29.3	87.6	0.84		<del>}</del>		2.61	ł
	100	92_	83	72	26_	'	33	21	-	ML	91.2	1461	28.2	93.2	0.79		<del> </del>	<del>}</del>	2.01	t
										SP-SM	112.4	1801	16.9	92.0	0.79		├	<del> </del>	<del>                                     </del>	t
<b>├</b>	100	95	41	12						SP-SM	103.9	1665	21.1	91.7	0.62		<del></del>	<del></del>	<del></del> -	t
										GP GP	109.6	1756	12.0	60.3	0.54		<del>                                     </del>	<del> </del>	<del>                                     </del>	t
	——(								<b>├</b> ──┤	SM	97.5	1562	26.6	98.7	0.73		<del>                                     </del>	<del>                                     </del>	<del> </del>	t
									}	SM	106.7	1709	16.4		0.58		<del> </del>	<del> </del>		t
				<b></b>		<b></b>		<del></del>		SM	105.8	1695	16.7	76.7 76.1	0.59		<del> </del>	-	<del> </del> -	t
<del></del>	∤		<b></b>	<b> </b>	<b></b>	├	<u> </u>	<u> </u>		- SMI	100.8	1095	10./	/0.1	0.09	ļ	<del>                                     </del>	<del> </del>	<del>}</del>	+
┝╾╼			<b> </b>	<b></b> -		<b></b> -	<b></b>	<u> </u>		CAA	94.5	1514	12.2	42.2	0.70		<del> </del>	<del> </del> -	<del></del> -	t
├	——- <u></u>		<b> </b>	<b></b> -	<b>_</b>	<b> </b>				SM SM	94.5 86.7	1389	12.3 18.9	42.3 54.1	0.78		<del>                                     </del>	<del>                                     </del>	<del> </del>	t
	∤		<b></b>			$\vdash$	<u> </u>	-	<b>-</b>	SP-SM	106.7	1709	4.6	21.6	0.58		<del>                                     </del>	<del>                                     </del>	<del>                                     </del>	t
										SM SM	86.0	1378	12.5	35.3	0.96		<del> </del>	<del> </del>	<b></b>	ł
		70	60			<del> </del>				ML	109.1	1748		28.8	0.55		<del> </del>	<del> </del>		t
94	88	79	68	57					<del> </del> -		109.1	1749	5.8 9.1	45.3	0.54		<del> </del>	<del>                                     </del>		t
81	68	53	34	25		<b>}</b>	<u> </u>		NP	SM	112.4	1801	9.1	49.9	0.50		<del> </del>	<del>                                     </del>		t
75	60	45	29	20		<b> </b> -		├	INP	SM SM	110.2	1765		29.9	0.53	<b></b> -	<del> </del>	<del> </del>	<del></del>	t
┝╾╾╅	—— <del> </del>									SM	105.4	1689	5.9 15.4	69.5	0.60		<del> </del>	<del> </del>	<del></del>	t
	<del></del>	45		10	<u> </u>	<b> </b>	<b></b>	├	-		112.9	1809	5.2	28.6	0.49		<del>}</del>			t
88	77	45	26	19			-	├	-	SM SM	113.2	1813	8.1	47.8	0.49		<del> </del> -			t
┝╼╌╅				<del> </del>	<u> </u>	<b></b> -		<b></b> -	NP	SM	104.9	1680		65.7	0.61		<del> </del>	<del> </del>		t
<b></b>			L	ļ		<del> </del>			INP		117.8	1887	14.7	49.2	0.43		<del> </del>	<del> </del>	<del> </del>	ł
100	99		71			<b> </b>	<b> </b>	├		GP-GM	104.8	1679	7.8 12.1	537	0.61		<del> </del>	<del>├</del>		ŧ
100		90		58		<b>}</b>		├		ML		<del></del>	9.6		0.52		├	<del>├</del> -	<del></del>	t
91	82	65	48	36		<b>}</b>		├	<b></b>	SM	110.5 115.3	1770		49.7			<del></del>	<del> </del>	<del></del>	ł
├──	{		<b></b>	├		<b> </b>	<u> </u>		├	SM		1847	14.0	81.8	0.46		<del> </del> -	<b>├</b> ──		ł
				<b> </b>		├		├	├	SM SP-SM	111.3	1783	11,0	57.6 65.0	0.39	<del></del>	┼	<del>}</del> -	<b>├</b> ──	ł
<del>   </del>				<del> </del> _	<b>-</b>	<b>├</b> ──	—	<del> </del>	├		121.2	1942	9.4			<del> </del>	<del> </del>	├──	<del>!</del>	ŧ
77	60	28	7	5	ļ	ļ	<b>!</b>	<u> </u>	<u> </u>	SP-SM	123.4	1977	13.2	97.3	0.37	<u> </u>	<del> </del>	}	<del>                                     </del>	₩
┝╾╌┪	<del></del> -∤				<del> </del>	<del> </del>	<b>├</b> ──	<b>}</b>	}	SM	111.5	1786	14.1	74.4	0.51	<del></del>	<del> </del>	├	<del> </del>	H
<del>                                     </del>	<del></del>			<del> </del>	<del>                                     </del>		<del> </del>	<b>-</b>	├—	SM	1105	1770	8.7	44.7	0.52	<del> </del>	<del>                                     </del>	1	<del>                                     </del>	ť
<del>  </del>			<del></del>	<del> </del>	<del></del>	├──	<del>                                     </del>	<del> </del>	├-	SM	110.5 106.5	1706	12.5	58.0	0.52	<del> </del>	+	<del> </del>	<del> </del>	ď
82	56	20	11	6	<del> </del>	<del> </del>	├	<del> </del>	<del>                                     </del>	SW-SM	104.5	1674	7.6	33.8	0.61	<del> </del>	<del> </del>	<del> </del>	<del>                                     </del>	ď
99	96	63	31	22	<del> </del>	├	$\vdash$	<del>                                     </del>	├─	SM	110.3	1767	15.3	78.2	0.53	<del>                                     </del>	<del>                                     </del>	+	<del>                                     </del>	-
-39	30	- 03	31	<del> </del> -	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	SM			11.8	58.2	0.55	<del></del>	<del> </del>	<del> </del>	<b></b> -	1
<del></del>		10	10	<del> </del>	<del>                                     </del>	<del> </del>	<del> </del>	<del>                                     </del>	}		108.9 109.7	1745	9.2	46.6		<del> </del>	<del> </del>	<del> </del>	<del> </del>	1
58	45	19	10	8	<b></b> -			<b>}</b>	<del> </del>	SP-SM					0.54	<del> </del>	<del>                                     </del>	├	<del>                                     </del>	1
56	39	17	11	8	<del> </del>	<del> </del>	├	├	<del> </del>	SW-SM	119,5	1914	4.3	28.6	0.53	<del>                                     </del>	<del> </del>	<del> </del>	<del></del>	1
<del>                                     </del>			<b></b>	<del>                                     </del>	<b>}</b>	├		├	├	SP-SM	110.5	1770	9.1	47.0	_	<del> </del>	<del>                                     </del>	<del> </del> -	<del>                                     </del>	1
			<b>-</b>	<b></b>	<u> </u>	<b>├</b> ──	<del></del>			SP-SM	120,3	1927,	8.8	59.4	0.40	<b>├</b> ──	<del>├</del>	<del>                                     </del>	<del>                                     </del>	ł
<b>  </b>			<b> </b> -					├	<b>├</b> ─	SP-SM	121.6	1948	9.4	66.0	0.39	<b>├</b> ──	<del> </del>	<del>                                     </del>	<del> </del>	4
┝─┤			<b> </b>	<del> </del>		├	├	├	├	SM	108.6	1740	17.6	85.9	).55	<del> </del>	<del> </del>	<del> </del>	<del>                                     </del>	ł
			L	I	J	l	l	L	<u></u>	SM	114.7	1837	14.1	81,4	0.45	<u> </u>	Ь	ــــــــــــــــــــــــــــــــــــــ	<u></u>	4

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ľ				11	I-SITU			C	OMPACTE	0		<del>-</del>	9.5		善		
F	16		DRY	UNIT	RE	종		MAXI	MUM	IR G	2 × 10	) <del> </del>	SSI		DATI	AL	1
	b)	USCS (c)	WEI	GHT	MOISTURE Content (%)	SATURATION (\$)	VOID Ratio	DRY DE	YTIZM	OPTINUM Moisture (\$)	SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT Shear	CONSOL IDATION	CHEMICAL	æ
4	Pi		(pcf)	(kg/m <sup>3</sup> )	25	SAT	22	(pcf)	(kg/m <sup>3</sup> )	8 <b>2</b>	2 2 2	<b>1</b>	돌중	급동	5	5	CBR
		ML	85.6	1371	35.0	101.5	0.90						٠				
	6	ML	88.5	1418	29.3	87.6	0.84				2.61						
		ML	91.2	1461	28.2	93.2	0.79										
П		SP-SM	112.4	1801	16.9	92.0	0.50										
		SP-SM	103.9	1665	21.1	91.7	0.62										
П		GP	109.6	1756	12.0	60.3	0.54										
$\Box$		SM	97.5	1562	26.6	98.7	0.73										
$\Box$		SM	106.7	1709	16.4	76.7	0.58										
		SM	105.8	1695	16.7	76.1	0.59										
		SM	94.5	1514	12.3	42.3	0,78										
		SM	86.7	1389	18.9	54.1	0.94										
Ц		SP-SM	106.7	1709	4.6	21.6	0.58										
		SM	86.0	1378	12.5	35.3	0.96										
		ML	109.1	1748	5.8	28.8	0.55										
		SM	109.2	1749	9.1	45.3	0.54										
	NP	SM	112.4	1801	9.2	49.9	0.50			L							
		SM	110.2	1765	5.9	29.9	0.53			<u> </u>							
		SM	105.4	1689	15.4	69.5	0.60			L							
		SM	112.9	1809	5.2	28.6	0.49			L				•			
		SM	113.2	1813	8.1	47.8	0.49			<b></b> _			<u> </u>				
	NP	SM	104.9	1680	14.7	65.7	0.61			L					ا ــــــــــــــــــــــــــــــــــــ		
_		GP-GM	117.8	1887	7.8	49.2	0.43		L								
_		ML	104.8	1679	12.1	537	0.61							•			
_		SM	110.5	1770	9.6	49.7	0.52			L							
_		SM	115.3	1847	14.0	81.8	0.46		ļ								
_		SM	111.3	1783	11.0	57.6	0.51			<b> </b>			<b></b>				
_		SP-SM	121.2	1942	9.4	65.0	0.39			<u> </u>			<b></b>				
_		SP-SM	123.4	1977	13.2	97.3	0.37										
_		SM	111.5	1786	14.1	74.4	0.51			ļ							
-4							2 5 5	<u> </u>	ļ	<b></b>		<b></b> _	-				
-4		SM	110.5	1770	8.7	44.7	0.52	<del></del>	<b> </b>		<b></b>						
	-	SM	106.5	1706	12.5	58.0	0.58		<b></b> -	<b> </b>			<b></b> -				
ᅱ		SW-SM	104.5	1674	7.6	33.8 78.2	0.61 0.53		<del> </del>	<b> </b>							
		SM	110.3	1767	15,3		_	<del></del>	<del> </del>	<b> </b> -	<b></b>		<del> </del>				
4		SM SP-SM	108.9	1745	11.8	58.2	0.55		<b> </b> -	ļ	<b> </b>		<b> </b>				
$\dashv$			109.7	1757	9.2	46.6	0.54	ļ	<b>}</b> -	<b> </b>	<b> </b>		<b> </b>	<b> </b>			
		SW-SM	119.5	1914	4.3	28.6	0.41	<b></b>	<b> </b>	<b></b>	<b></b>		<b>}</b> -				
$\dashv$		SP-SM	110.5	1770	9.1	47.0	0.53	<b></b>	<del> </del>	<del> </del>			<del> </del>				
닉	1	SP-SM	120.3 121.6	1927,	8.8 9.4	59.4	0.40	<b></b> _	<del></del>		<b></b>		<del> </del>				
$\dashv$	-	SP-SM SM	108.6	1948 1740	17.6	66.0 85.9	). <b>5</b> 5	<b></b> -	<del> </del>	<del> </del>	├		<del> </del>			<u> </u>	
-		SM	114.7	1837	14.1	81.4	0.45	<b></b> -	}	<del> </del>	<b></b>		<del></del>				
_		3/41	114./	103/	17.1	V1.7	0.70	ļ — — — — — — — — — — — — — — — — — — —	<u> </u>		لسسيا			<b></b>			

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BOOK

TABLE II - 5 - 1 2 OF 10

<u>vero national inc</u>

AFY-01

	2		<del></del>	T					PERCE	T FIN	R BY	ELGHT		
<u> </u>	E :R (a)	SAMPLE	NTERVAL		S	TANDARD	SIEV	E OPEN	ING		US	STAN	DARD S	IEVE
ACT I V I TY NUMBER	SAMPLE Number			BLDRS	COBE	BLES		GRA	VEL			SA	ND	
2 2	S =	FEET	METERS	24"	12"	6"	3"	15"	3/4"	3/8"	4	10	40	100
MD-56	P-15	80.8 - 81.6	24.63 - 24.87											
	P-16	90,3 - 91,1	?7.52 - 27.77											
			<u> </u>	1					<u> </u>					
MD-B-6	D-2	1.7 - 2.5	0.52 - 0.76						1					
	D-4	4.2 - 5.0	1.28 - 1.52						100	91	80	62	33	18
	D-6_	7.7 - 8.5	2.35 2.59											
	D-8	16.2 - 17.0	4.94 - 5.18					100	87	71	57	39	20	12
	P-9	21.0 - 21.7	6.40 - 6.61							100	99	98	93	85
	P-9	21.0 - 21.7	6.40 - 6.61											
	P-10	28.1 - 28.7	8.56 - 8.75											
	D-11	34.2 - 35.0	10.42 - 10.67											
	D-12	39.2 - 40.0	11.95 - 12.19					100	90	76	60	46	28	19
	D-13	44.2 - 45.0	13,47 - 13,72						L					
	D-14	49.2 - 50.0	15.00 - 15.24	<b>_</b>										
MD-B-7	D-1	0.7 - 1.5	0.21 - 0.46	<del>                                     </del>		<b></b> -			<del> </del>		ļ	<del> </del>		
	D-2	3.7 · 4.5	1.13 - 1.37					100	84	78	71	66	56	47
	D-3	6.2 - 7.0	1.89 - 2.13											
	D-4	10.2 - 11.0	3.11 - 3.35											
	D-5	15.2 - 16.0	4.63 - 4.80											
	D-6	20.2 - 21.0	6.16 - 6.40											
	D-7	25.2 - 26.0	7.68 - 7.92					100	82	68	56	45	26	16
	D-8	30.2 - 31.0	9.20 - 9.45											
	D-9	35.2 - 36.0	10.73 - 10.97											
	D-10	40.7 - 41.5	12.41 - 12.65							,				
	D-11	45.2 - 46.0	13.78 - 14.02							,				
	D-12	50.2 - 51.0	15.30 - 15.55					100	88	75	56	40	20	12
MD-B-8	D-1	0.2 - 1.0	0.06 - 0.30											
	D-2	3.2 - 4.0	0.98 - 1.22					100	94	77	67	59	52	41
	D-3	6.2 · 7.0	1.89 - 2.13											
	D-4	10.2 - 11.0	3.11 - 3.35						100	85	69	54	36	28
L	D-5	15.2 - 16.0	4.63 - 4.88											
	D-6	20.2 - 21.0	6.16 - 6.40											
L	D-7	25.2 - 26.0	7.68 - 7.92											
	D-10	40.2 - 41.0	12.25 - 12.50											
	D-12	50.7 - 51.5	15.45 - 15.70					100	97	77.	66	57	47	36
			<b></b>	<b>_</b>										
MD-B-9	P-1	0.8 - 1.6	0.24 - 0.49	<b> </b>		<b> </b>		<u> </u>	<u> </u>	<b> </b>		ļ		
<b></b>	P-2	3.0 - 4.0	0.91 - 1.22	1		L			<u> </u>	L		L	L	
	P-3	6.0 · 6.6	1.83 - 2.01						<b></b>		L	100	99	96
<b> </b>	P-4	10.0 · 11.0	3.05 - 3.35	1		<b></b>	ļ	<b></b> _	<del> </del>			100	99	73
L	P-4	10.0 - 11.0	3.05 - 3.35	1 '	l	l i	l	l	1	l i		l	I	

# WOTES:

(a) Sample types

(c) USCS - Unified Soil Classification System

SS - Standard split spoon

P - Pitcher

D - Fugro Drive

(d) \* Indicates that test has been performed and results are included in this report

B, b - Bulk

(b) NP - Not Plastic

F1101	R BY I	WE   CUT									<del></del>			I-SITU			n n	OMPACTE		
F-"				1545 *	10	PART	ICLE	AT	TERBE	RG					喜					٠,
	US			SIEVE I		SIZE	(mm)		NITS (		uscs	ORY WELL		MOISTURE Content (\$)	SATURATION (\$)	_ 0	MAXI Dry De	I MUM Y 1 2 M	OPTIMUM Moisture (%)	SPECIFIC GRAVITY AF CALIDE
/8"	4	SA 10	MU 40	100	200	T OR C	.001	LL	PL	PI	(c)			NOIST CONTE (\$)	ATURA (\$)	VOID RATIO	(pcf)	(kg/m <sup>3</sup> )		SPE
۴۰	<u> </u>	10	40	100	200	.003	.001	<del>  "</del>	1.		SP-SM	(pcf) 114.0	(kg/m³) 1826	13.2		-	(per)	( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( ( (	<del></del>	
-		<del>                                     </del>	}	}	<del> </del>	<del> </del>	<del> </del>			<b></b> -		103.8	1663	17.1	74.3	0.48		<del></del>	<del></del>	ļ
<b> </b> -		<b></b>	<del> </del>	<del> </del>		<b></b> -	├	<b>-</b>		├──	Rock	103.8	1003	<del>  '''</del>	74.0	0.62		<del> </del>	<del></del>	<u></u>
-	<u> </u>	<b>├</b> ──	<del></del>	<del></del>		<del>}</del>	├	<del> </del> -	<del> </del>	├	SM	109.1	1748	7.2	35.7	0.54		<del></del>	├	<b> </b>
91	80	62	33	18	12		<del> </del>	<del> </del>		<del> </del>	SW-SM	109.7	1757	12.5	63.2	0.54		<del>                                     </del>	<b></b> -	-
F .	<u> </u>	<u>"</u>	33	<del>                                     </del>	<del>  ``</del> -				1	<del>                                     </del>	SW-SM	113.9	1825	6.4	36.4	0.48		<del> </del>	<b></b> -	<b></b>
71	57	39	20	12	9		<del>                                     </del>				SW-SM	118.1	1892	6.7	42.4	0.43	L			
00	99	98	93	85	70	<b>-</b>	<b>†</b>				ML	103.7	1661	17.5	75.6	0.63				
			<u> </u>	1							ML	104.7	1677	18.7	83.1	0.61		<del>                                     </del>		
											SP-SM	111.0	1778	7.1	37.1	0.52				
				1							SP-SM	119.6	1916	6.2	40.9	0.41				
76	60	46	28	19	14						SM	125.5	2011	7.3	57.7	0.34				
							L				SM	120.5	1930	6.8	46.0	0.40				
										Ĺ	SP-SM	122.7	1966	7.3	52.6	0.37		L		
				<u> </u>		Ĺ	<u></u>	L					<u> </u>			L				
				<u> </u>	L		L	L	L		SC	104.4	1672	10.3	45.5	0.61			<u> </u>	
78	71	66	56	47	38		ļ	31	19	12	SC	118.9	1905	7.8	50.6	0.42	L			
<b></b>			<u> </u>	ļ		<b>.</b>	<b></b> _	<u> </u>		ļ	SC	126.3	2023	5.8	47.1	0.33		<b> </b>	<b></b> -	<b></b>
<u> </u>			L	<b> </b>		<b></b>	<b>-</b>	<b> </b>	<b>-</b>	ļ	GP	117.3	1879	6.4	39.8	0.44		<del> </del> -	<b> </b> -	<b>}</b>
		<u> </u>	<u> </u>	<b></b>	<b>├</b>	<b></b>	<b>{</b> -	├—			GP	121.5	1946	4.6	32.0	0.39		<b>├</b>	<del> </del>	
-		45	<u> </u>	1	1.	<b></b> -	<b></b> -	<u> </u>	<b>├</b> ──		GP	128.3	2055	2.9	25.1	0.31		<del> </del>	<del> </del>	<b> </b>
<b>6</b> 8	56	45	26	16	11	<del> </del>	<del> </del>	├			SP-SM	125.9	2017	6.2	49.1	0.34		<del> </del>	<b></b> -	
		ļ.——-	├	<b>}</b>	<b>}</b>	<del>                                     </del>	<del>                                     </del>	<b>}</b> —			SP-SM SP	123.3	1975 1990	7.0 7.6	51.9 57.3	0.37 0.36	<b>-</b>	<del> </del>	<del>                                     </del>	
		<del></del>		<del> </del>	<del> </del>		├	<del> </del>	<del></del>	<del> </del>	SP	115.9	1857	14.1	84.0	0.36		<del>{</del> -	<del></del>	
	_			<del>                                     </del>	├──		├	├	-	<del> </del> -	SW-SM	127.6	2044	9.5	80.4	0.45		<del> </del>	├	
75	56	40	20	12	9	<del>                                     </del>	<del> </del>	<del> </del>			SW-SM	129.5	2075	7.9	71.3	0.30	<del></del>	<del>                                     </del>	<del> </del> -	1
	30			<del>  '`</del>	<del>                                     </del>	<del> </del>	<del> </del> -	lacktree		<del>                                     </del>	344-3141	123.5	20/3	-/-	71.5	0.50		<del> </del>	<del>                                     </del>	1
					<del>                                     </del>	<b></b>	SM	88.2	1413	7.2	21.4	0.91	l	<del>                                     </del>	<del>                                     </del>					
77	67	59	52	41	28	<del>                                     </del>	<del>                                     </del>	<del>                                     </del>	$\vdash$		SM	107.2	1717	8.2	38.7	0.57	<b></b> -	<del> </del>	<u> </u>	1
				<u> </u>	1	<u> </u>			$\vdash$		SP-SM	111.2	1781	12.5	65.5	0.52				
85	69	54	36	28	22						SM	112.2	1797	10.3	55.7	0.50				
											SP-SM	131.3	2103	4.5	43.2	0.28				
											SP-SM	127.2	2038	4.6	38.7	0.33		L		
											SP-SM	128.1	2052	6.5	56.0					
											SP-SM	135.6	2172	6.8	75.4	0.24		<u></u>	L	
77.	66	57	47	36	26	L					SM	132.2	2118	7.4	72.9	0.28				
				<u> </u>	L								<u> </u>			<b></b>		ļ	L	
					ļ	<u> </u>					SC	81.7	1309	8.7	22.1			<b></b>	<b></b>	
									<u> </u>	<u>[]</u>	SC	105.7	1693	14.6	66.3			L	<u> </u>	
		100	99	95	85					NP	ML	111.4	1785	17.1	90.5	0.51		<b></b>	<b> </b>	2.7
		100	99	73	50	ļ	ļ	L	<u> </u>		SM	101.1	1620	11.4	46.1	0.67		<b>├</b> ──		<b></b>
				<u> </u>	<u> </u>	Ĺ <u> </u>	<u> </u>	<u> </u>	<u> </u>		SM	L		14.4	<u> </u>		L		<u> </u>	

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		<u> </u>	16	I-SITU			C	OMPACTE	0		(g)	_ Z		3		
2	USCS (c)	DRY U	HT	MOISTURE CONTENT (\$)	SATURATION (\$)	VOID RATIO	MAXI DRY DE	MUM NSITY	OPTIMUM Moisture (\$)	SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (	UNCONFINED COMPRESSION	DIRECT	CONSOLIDATION	CHEMICAL	CBR
PI		(pcf)	(kg/m³)	≣ 3	YS	22	(pcf)	$(kg/m^3)$	5 <b>3</b>	25 50	ш	3	0 10	53	13	25
	SP-SM	114.0	1826	13.2	74.3	0.48			-							
	Rock	103.8	1663	17.1	74.0	0.62										
	SM	109.1	1748	7.2	35.7	0.54									•	
	SW-SM	109.7	1757	12.5	63.2	0.54						ļ				
<u> </u>	SW-SM	113.9	1825	6.4	36.4	0.48										
-	SW-SM	118.1	1892	6.7	42.4	0.43			ļ					ļ		<b>├</b> ──
	ML	103.7	1661	17.5	75.6	0.63			<b>}</b>			<b> </b>	<b> </b>	<b></b>		
<b> -</b>	ML SP-SM	104.7 111.0	1677	18.7 7.1	83.1	0.61	-					<del></del>	<u> </u>	<b> </b>		
	SP-SM	119.6	1778 1916	6.2	37.1 40.9	0.52 0.41										┝╌┤
	SM	125.5	2011	7.3	57.7	0.34				<u>-</u>		ļ				
	SM	120.5	1930	6.8	46.0	0.40										$\vdash \vdash \vdash$
	SP-SM	122.7	1966	7.3	52.6	0.37										
	SC	104.4	1672	10.3	45.5	0.61										
12	SC	118.9	1905	7.8	50.6	0.42										
	SC	126.3	2023	5.8	47.1	0.33										
	GP	117.3	1879	6.4	39.8	0.44									•	
	GP	121.5	1946	4.6	32.0	0.39										
	GP	128.3	2055	2.9	25.1	0.31										
	SP-SM	125.9	2017	6.2	49.1	0.34										
	SP-SM	123.3	1975	7.0	51.9	0.37										
	SP	124.2	1990	7.6	57.3	0.36								Ĺ		
	SP	115.9	1857	14.1	84.0	0.45										igsquare
1	SW-SM	127.6	2044	9.5	80.4	0.32						ļ		<b></b>		oxdot
1	SW-SM	129.5	2075	7.9	71.3	0.30			<b> </b>			ļ				$\vdash$
-	<u> </u>		1440	<del>   </del>					<del> </del>	<u> </u>		<del>                                     </del>				1
	SM	88.2	1413	7.2	21.4	0.91			<b></b>			-				
╂╌┤	SM SP-SM	107.2 111.2	1717 1781	8.2 12.5	38.7 65.5	0.57 0.52			<del> </del>			<del> </del>				$\vdash$
-	SM SM	112.2	1797	10.3	55.7	0.50			<del> </del>							$\vdash$
1	SP-SM	131.3	2103	4.5	43.2	0.28			<u> </u>							$\vdash$
	SP-SM	127.2	2038	4.6	38.7	0.33						f		<del></del>	*	$\vdash \vdash \vdash$
<b>†</b>	SP-SM	128.1	2052	6.5	56.0	0.32								<del> </del>		$\vdash$ $\dashv$
	SP-SM	135.6	2172	6.8	75.4	0.24			<b> </b>							$\vdash$
1	SM	132.2	2118	7.4	72.9	0.28			<b>-</b>							$\vdash \vdash \vdash$
1									t							$\vdash \dashv$
	SC	81.7	1309	8.7	22.1	1.06										
1	SC	105.7	1693	14.6	66.3	0.59										
NP	ML	111.4	1785	17.1	90.5	0.51				2.73				•		
	SM	101.1	1620	11.4	46.1	0.67							•			
	SM			14.4					$oldsymbol{ol}}}}}}}}}}}}}}}}}}$							

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE II - 5 - 1 3 OF 10

GRO NATIONAL INC

AFY-01

				1					PERCE	IT FINE	R BY W	EIGHT		
<u> </u>	E 'R (a)	SAMPLE 1	NTERVAL		2.	TANDARD	SIEV	E OPEN	ING		U S	STAN	DARD S	SIEVE
ACT I V I TY Number	SAMPLE Number			BLDRS	COBE	LES		GRA	VEL			SA	ND	
S S	SA	FEET	METERS	24"	12"	6"	3"	15"	3/4"	3/8"	4	10	40	100
MD-B-9	P-5	16.0 - 16.6	4.88 - 5.06											
	D-6	20.2 - 21.0	6.16 - 6.40						100	99	98	96	92	75
	P-7	25.0 · 25.6	7.62 · 7.80											$\Box$
	P-8	31.0 - 31.6	9.45 - 9.63											
	P-8	31.6 - 32.2	9.63 - 9.81							100	99	97	94	92
	P-8	32.2 - 32.8	9.81-10.00											
	P-8	32.8 - 33.4	10.00 - 10.18											
	P-9	35.0 · 37.5	10.67 - 11.43									100	95	89
	P-9	36.6 - 37.5	11.16 - 11.43											
	P-10	40.8 · 41.6	12.44 - 12.68											
	P-11	45.6 - 46.3	13.90 - 14.11											
	P-12	50.8 - 51.6	15.48 - 15.73								100	99	95	57
<u></u>	P-12	51.6 - 52.5	15.73 - 16.00			L			L			L	L	<u> </u>
	P-13	59.0 - 59.8	17.98 - 18.23									<u> </u>		<u> </u>
[i	P-14	69.0 - 69.8	21.03 - 21.28											<u> </u>
	P-14	70.6 - 71.5	21.52 - 21.79						L			L	L	<u> </u>
	P-15	79.2 - 80.0	24.14 - 24.38									L	L	<u> </u>
	P-16	89.0 - 89.8	27.13 - 27.37	<b></b>								L		<u> </u>
	P-16	90.6 - 91.5	27.61 - 27.89											L
	D-17	99.1 - 99.9	30.21 - 30.45	<b>-</b>	_							<u> </u>		<del> </del>
MD-B-10	D-1	0.5 - 1.3	0.15 - 0.40	-							<u> </u>	<del> </del>	<b></b>	┼
100000	D-4	5.2 · 6.0	1.58 - 1.83	1					100	97	89	74	46	28
<b>-</b>	D-7	10.2 - 11.0	3,11 · 3,35	<del>                                     </del>					1.00	<del></del>	- 63	17	1 70	
<b></b>	D-8	15.2 - 16.0	4.63 - 4.88	1				100	76	59	48	38	22	11
<del></del>	P-9	20.4 - 21.5	6.22 - 6.55	1				100	<del></del>	- 33	<del></del>	===		╁╌┷
	D-10	25.2 - 26.0	7.68 - 7.92	1				100	96	85	69	53	29	15
	P-11	29.8 - 30.6	9.08 - 9.33	$\vdash$		<del> </del>		,50	<del></del>	<del></del>	— <del></del>	<del>  </del>	<del>  ``</del>	† <u> </u>
<u> </u>	P-12	34.2 - 34.8	10.42 - 10.61	1					100	99	96	92	81	62
<del> </del>	P-12	34.8 - 35.4	10.61 - 10.79	1				ļ	1.00	-33	30		<del>  "</del>	<u>"</u>
<b></b>	P-12	35.5 · 35.7	10.82 - 10.88	1								<del>                                     </del>	<del>                                     </del>	<del>                                     </del>
	P-13	39.0 - 39.8	11.89 - 12.13						_	<u> </u>	<b></b> -	$\vdash$	<del> </del>	<del>                                     </del>
	D-14	44.2 - 45.0	13.47 - 13.72							· · · ·				
	P-15	49.2 - 50.0	15.00 - 15.24											
	P-15	50.8 · 51.2	15.48 - 15.61											
	D-16	60.2 - 61.0	18.35 - 18.59	1						100	99	98	93	11
	P-17	69.1 - 69.6	21.06- 21.21								100	98	98	94
	P-17	69.7 - 70.2	21.24 - 21.40	1										
J	P-17	70.3 · 70.8	21.43 - 21.58											П
	P-17	70.8 · 71.4	21.58 - 21.76		<del></del>								T	
	D-18	80.2 · 81.0	24.44 · 24.69									100	98	91
	D-19	89.2 - 90.0	27.19 - 27.43											
	D-20	99.2 - 100.0	30.22 - 30.48										100	3

(a) Sample types

(c) USCS - Unified Soil Classification System

SS - Standard split spoon

P - Pitcher

(d) \* Indicates that test has been performed

D - Fugro Drive

and results are included in this report

B, b - Bulk

(b) NP - Not Piastic

	SM	102.8	1647	23.1
	SP-SM	119.1	1908	16.2
26	СН	83.2	1333	35.6
	СН	99.6	1596	26.0
	SP	119.5	1914	11.3
	SM	79.3	1270	38.7
	SM	80.6	1291	37.1
	SP	119.3	1911	11.8
	SM	96.8	1551	6.2
	SM	108.4	1737	11.1
	SP-SM	116.9	1873	4.9
	GP-GM	126.3	2023	6.3
	SM	98.3	1575	15.5
	SW-SM	111.2	1781	10.1
	SM	124.9	2001	4.3
13	SC	103.2	1653	18.4
	SC	98.9	1584	19.3
	SC	112.8	1807	13.6

110.5	1770	19.4	99.7	0.52	 L	J	J	<u> </u>	1	l	L
96.4	1544	25.8	93.2	0.75							
105.1	1683	21.9	98.3	0.60							
102.8	1647	23,1	97.7	0.64						*	L
119.1	1908	16.2	100.0	0.41							
83.2	1333	35.6	93.7	1.03							
99.6	1596	26.0	100.0	0.69						Γ	
119.5	1914	11.3	74.7	0.41							
79.3	1270	38.7	92.8	1.12							
80.6	1291	37.1	92.0	1.09							
119.3	1911	11.8	77.2	0.41							
					Į _						
96.8	1551	6.2	22.6	0.74							Ĺ
108.4	1737	11.1	54.0	0.55							
116.9	1873	4.9	30.3	0.44							
126.3	2023	6.3	51.1	0.33							
98.3	1575	15.5	58.6	0.71							
111.2	1781	10.1	52.8	0.52						•	
124.9	2001	4.3	33.4	0.35							
103.2	1653	18.4	78.5	0.63				*			
98.9	1584	19.3	74.2	0.70				•			
112.8	1807	13.6	74.9	0.49							
107.9	1729	15.5	74.6	0.56							
99.2	1589	25.9	99.9	0.70	 	L	L	<b>!</b>			
105.7	1693	19.8	90.1	0.59	 <u> </u>	L					
102,9	1648	22.9	97.1	0.64	 ļ	<u> </u>		<u> </u>	<u> </u>		
106.8	1711	20.1	93.8	0.58		L	<u> </u>	<u></u>		•	
101.0	1618	23.6	95.3	0.67				<u> </u>		<u> </u>	
99.9	1600	23.8	93.4	0.69				•			
100.1	1604	23.2	91.7	0.69				•			
99.4	1592	26.4	103.3	0.69							
86.5	1386	34.7	99.0	0.95					*		
134.0	2147	8.7	91.8	0.26							
104.4	1672	22.5	98.8	0.61	 11	<u> </u>			L	<u>i                                     </u>	

	(a)		<del></del>						PERCEI	IT FINE	ER BY V	EIGHT			
È <sub>æ</sub>		SAMPLE I	NTERVAL		2.	TANDARI	SIEV	E OPEN	ING		U S	STAN	DARD S	SIEVE	NO.
ACT I V I TY Number	SAMPLE NUMBER			BLDRS	COBB	LES		GRA	VEL			SA	ND		Т
2 3	2 =	FEET	METERS	24"	12"	6"	3**	15"	3/4"	3/8"	4	10	40	100	12
MD-B-11	P-1	1.0 - 1.8	0.30 · 0.55												Т
	D-2	3.7 - 4.5	1.13 - 1.37						100	93	80	66	18	5	Т
	D-3	6.2 - 7.0	1.89 - 2.13												T
	D-4	10.7 - 11.5	3.26 - 3.51												Т
	D-5	15.2 · 16.0	4.63 - 4.88												
	P-6	20.2 · 21.0	6.16 - 6.40											<u> </u>	L
	P-7	24.0 - 24.8	7.32 - 7.56						100	98	96	91	71	34	
	P-8	29.0 - 31.1	8.84 - 9.48											$\Box$	$\Gamma$
	P-9	35.4 · 36.2	10.79 - 11.03												
	P-10	40.0 - 40.8	12.19 - 12.44												$\mathbf{I}_{-}$
	D-11	45.1 - 45.9	13.75 - 13.99												$oldsymbol{\mathbb{L}}$
	P-12	50.2 - 50.5	15.30 - 15.39									100	99	67	$\perp$
L	P-12	50.5 - 51.0	15.39 - 15.54											<u> </u>	丄
L	D-13	60.2 - 61.0	18.35 - 18.59			<u></u>			<u> </u>			L			丄
	D-14	70.2 - 71.0	21.40 - 21.64			L								<u>L</u>	Ŀ
	D-15	80.2 - 81.0	24.44 - 24.69											<u> </u>	L
	P-16	89.2 - 90.0	27.19 - 27.43							100	97	90	69	37	
	P-17	100.0 - 100.8	30.48 - 30.72											L	
	P-19	120.0 - 120.8	36.58 - 36.82											I	
	P-20	140.5 - 141.3	42.82 - 43.07												$\mathbf{D}$
	D-21	159.2 - 160.0	48.52 - 48.77					_							
														<u> </u>	
MD-B-12	P-1	0.5 - 1.3	0.15 - 0.40	L										Ĺ	
	P-2	3.3 - 4.1	1.01 - 1.25												$\mathbf{I}$
	P-2	4.1 - 4.9	1.25 - 1.49												$\Box$
	D-3	6.7 - 7.5	2.04 - 2.29												$\Pi$
	D-4	10.2 - 11.0	3.11 - 3.35							100	95	81	36	18	$\Pi$
	D-5	15.2 - 16.0	4.63 - 4.88												$\Pi$
	D-6	20.2 - 21.0	6.16 - 6.40												П
	D-7	25.2 - 26.0	7.68 - 7.92					100	93	87	69	46	18	10	$\Pi$
	D-8	30.2 - 31.0	9.20 - 9.45												$\Box$
	D-9	35.2 - 36.0	10.73 - 10.97												$\Box$
L	D-10	40.2 · 41.0	12.25 - 12.50						L						П
	D-11	45.2 - 46.0	13.78 - 14,02												$\prod$
	D=12	50.2 - 51.0	15.30 - 15.54											<u> </u>	П
MD-B-13	P-1	0.9 · 1.7	0.27 · 0.52			<del> </del>	$\vdash \vdash$		<del> </del>	<u> </u>	<del> </del> -	<del> </del>	<del> </del>	├─	H
1	D-2	3.7 · 4.5	1.13 - 1.37	<b> </b>		<b></b> -			<del>                                     </del>	<b>-</b>	<b></b> -	<del> </del>	<del> </del>	<del>                                     </del>	H
<b></b>	P-3	6.5 · 7.3	1.98 - 2.23	1		<u> </u>			100	93	81	73	56	28	H
	P-4	10.1 · 10.9	3.08 - 3.32	f		<u> </u>	$\vdash$	<b></b>	1.00		100	98	79	47	H
<b></b>	D-5	15.2 - 16.0	4.63 - 4.88	<del>                                     </del>		<del>                                     </del>	$\vdash$	<u> </u>	<del> </del>	<b></b> -	100	30	<del>'''</del> -	<del>                                     </del>	H
<b></b>	D-6	20.2 - 21.0	6.16 - 6.40	1		<del>                                     </del>	$\vdash$			<b>—</b> —	<del></del>	<b></b> -	├	├──	H
<b> </b>	P-8	30.2 - 31.0	9.20 - 9.45			<b></b>	$\vdash$	<u> </u>	<del>                                     </del>		<del> </del>	<del>}</del>	<del>                                     </del>	<del> </del>	Ħ
L		30.4 - 31.0	3.4U · 9.40			<u> </u>	ليسا	<u> </u>					<u> </u>		1

#### MOTES:

(a) Sample types

(c) USCS - Unified Soil Classification System

SS - Standard split spoon

P - Pitcher

(d) \* Indicates that test has been performed and results are included in this report

B - Fugro Drive

B,b - Bulk

(b) MP - Not Plastic

				SM
				SP
				SM
,				SM
				SP-SM
				SM
				SM
				SP-SM
				SM
				SM
				SM
	 			SM
				SM
				SM
		-		SM
	 			0
				SM
		-		SM
	 			SM
		$\vdash$		SM
	$\vdash$	$\vdash$	NP	
	 -		INP	SW-SM
	—			SP-SM
	L			SM
	L	I .		SW-SM

					UT I 2-			C	OMPACTE			(p)	- E		8		
ERBE OTS (	b)	USCS (c)	DRY (	SHT	MOISTURE Content (\$)	SATURATION (%)	VOID Ratio	MAX I DRY DE		OPTINUM Noisture (%)	SPECIFIC GRAVITY OF SOLIOS	TRIAXIAL	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
PL	PI		(pcf)	(kg/m <sup>3</sup> )	<b>3</b> 5	YS	22	(pcf)	(kg/m³)	<b>⊙ =</b>	222		32	S	103	13	13
		SM	96.1	1540	4.9	17.4	0.75										
		SP	109.0	1746	8.0	39.7	0.55										
		SP	115.2	1846	6.2	36.3	0.46										
		SP	116.7	1870	7.0	42.6	0.44										
		SP	122.7	1966	6.2	45.3	0.37			ļ					<u></u>	*	
		SM	113.1	1812	13.1	68.6	0.51			<b> </b>		ļ					
		SM	102.7	1645	8.1	34.1	0.64			ļ							
		SM	112.8	1807	7.7	42.4	0.49		ļ	<b></b>	<b>L</b> i						
	$\Box$	SM	113.3	1815	12.1	67.0	0.49		<b></b>	<b></b>							
		SM	100.1	1604	16.5	65.3	0.68			<b></b> -							
$\vdash$		SP-SM	113.8	1823	11.0	61.9	0.48		L	ļ	[						
		SM	100.3	1607	27.6	100.0	0.68		<b></b> -	<del> </del>		-	<b> </b>				
		SM	114.9	1841	11.3	65.4	0.47		ļ	<b> </b>	<b></b> _		<b>├</b> ──				
		SP-SM	121.9	1953	12.7	89.8	0.38		<b></b>	<b></b>	<b>!</b>						
	Ь	SM	122.3	1954	10.1	72.3	0.38	<u> </u>	<del> </del>	<b> </b>	<b></b>	<u> </u>					
		SM SM	115.9	1857	7.4	43.8	0.45		<b> </b>	<b> </b>	ļ	<u> </u>	<b></b>				
$\vdash$		SM	105.1 107.4	1684 1721	17.3	77.8	0.60 0.57	<u> </u>	<del> </del>	<b>├</b> ──	<b>├</b> ──	<u> </u>					
	$\vdash$	SM	117.9	1889	15.4 13.9	73.1 87.3	0.57	<del></del>	<del>                                     </del>	}	<b></b>	<b></b> -	}	$\overline{}$			
	$\vdash$	SM	104.1	1668	21.1	92.1	0.62		<del> </del> -	<del>                                     </del>		<del></del> -					-
		SM	112.4	1801	18.3	99.3	0.50	<u> </u>	<del>[</del>	<del> </del>	ł		1				
		3141	112.4	1001	10.5	33.3	0.50		<del>                                     </del>	<del>                                     </del>			1	-			
		SM	96.8	1551	5.5	19.9	0.74	<del></del> -	<del> </del> -	<del> </del>			<b>-</b>				
-		SM	94.7	1517	13.8	48.0	0.78	<u> </u>	<del></del>	f	f		1				
		SM	109.3	1751	11.6	58.1	0.54		<del>                                     </del>	<u> </u>		-					
	-	SM	117.3	1879	7.1	43.7	0.44		<del>                                     </del>		<b>-</b>		-				
$\vdash$	NP	SW-SM	102.9	1648	8.2	34.8	0.64		<del>                                     </del>	<del> </del>	f		•				
		SP-SM	113.1	1812	5.9	32.3	0.49										
		SM	118.9	1905	10.7	69.4	0.42			t — —			1				
$\vdash$	$\vdash$	SW-SM	112.2	1797	7.2	38.7	0.50		<del>                                     </del>	f	f		f	•		$\vdash$	
		SP-SM	112.8	1807	12.6	68.7	0.49			1		<u> </u>		-			
		SP-SM	121.1	1940	7.0	48.3	0.39		<u> </u>	1	1						
		SP	115.8	1855	7.7	45.6	0.46										
		SM	95.2	1525	17.1	60.1	0.77			I							
		SM	121.6	1948	8.9	62.4	0.39										
		SM	96.4	1544	9.2	33.4	0.75		1		I						
		SP·SM	116.3	1863	6.0	35.9	0.45										
		SM	101.2	1621	9.4	38.2	0.67										
		SM	106.5	1706	9.4	44.0	0.58		1					•			
		SP	114.9	1841	5.4	31.2	0.47									٠	
		SP	113.9	1825	5.4	30.8	0.48										
		SP	109.7	1757	6.5	33.0	0.54										

SUMMARY OF LABORATORY TEST RESULTS OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 8000

TABLE II - 5 - 1 8 OF 10

<u>uero national II</u>

AFY-

	$\overline{}$			Τ					PERCE	NT FINE	R BY	WEIGHT		
LTY R	E (a)	SAMPLE I	FEET         METERS           35.2 - 36.0         10.73 - 10.97           40.2 - 40.8         12.25 - 12.44			TANDARI	SIEV	E OPEN	ING		บ	ATS S	IDARD, S	SIEVE
ACT I V I TY Number	SAMPLE Number	1		BLDRS.	COB	BLES		GRA	VEL			SA	ND	
AC	2 =	FEET	METERS	24"	12"	8"	3"	1½"	3/4"	3/8"	4	10	40	100
MD-8-13	D-9	35.2 - 36.0	10.73 - 10.97											
	P-10	40.2 - 40.8	12.25 - 12,44	$\mathbf{I}^{}$						100	97	83	59	46
	P-10	40.2 - 40.8	12.25 - 12.44											
	D-11	45.2 - 46.0	13.78 - 14.02					100	97	78	62	44	23	13
	P-12	50.0 - 50.8	15.24 - 15.48											
	P-13	60.0 - 62.5	18,29 - 19.05			L			100	92	76	57	26	18
	P-13	60.5 - 61.3	18.44 - 18.68											
	P-13	61.3 - 62.1	18.68 - 18.93											
	P-14	71.1 - 72.0	21.67 · 21.95											
	D-15	79.2 - 80.0	24.14 - 24.38			I								
	P-16	90.0 - 90.8	27.43 - 27.68											
	D-17	99.2 -100.0	30.24 - 30.48									ļ	F	F
MD-B-14	D-1	0.2 · 1.0	0.06 - 0.30	+		<del> </del>	<del> </del>	<b></b>	<del>                                     </del>	<del> </del>	<u> </u>	<del> </del>	<del> </del> -	┼──
	D-2	3.2 - 4.0	0.98 - 1.22									<b>†</b>	<u> </u>	
	D-3	6.2 - 7.0	1.89 - 2.13	1		t —	1		<del>                                     </del>			<del> </del>		
	D-4	10.2 - 11.0	3.11 · 3.35	1						100	97	93	78	67
	D-5	15.2 - 16.0	4.63 - 4.88	1		<b>†</b>	t		<b>†</b>			1		
	Р6	20.0 - 21.6	6.10 - 6.58				<u> </u>		<u> </u>				<del>                                     </del>	T
	D-7	25.2 - 26.0	7.68 - 7.92				100	72	68	60	55	45	27	17
	D-8	30.2 - 31.0	9.20 - 9.45	1		†			1					
	D-9	35.2 - 36.0	10.73 - 10.97			1			1					
	D-10	40.2 - 41.0	12.25 - 12.50	1		1								
	D-11	45.2 - 46.0	13.78 - 14.02			<u> </u>			100	98	92	85	71	60
	D-12	50.0 - 50.9	15.24 - 15.51			1		100	88	76	63	51	31	20
	P-13	58.0 - 58.5	17.68 - 17.83			<del>                                     </del>								
	D-14	59.2 - 60.0	18.04 - 18.29	7		1			1			1		
	D-15	70.2 - 71.0	21.40 - 21.64			†		T						
	D-16	80.2 - 81.0	24.44 - 24.69									1		
	P-17	89.0 - 89.8	27.13 - 27.37						1	·				
	D-18	180.2 - 101.0	30.54 - 30.78											
MD·B 15	P-1	0.0 - 0.8	0.00 - 0.24	<del> </del>		<del> </del>	-	<del></del>				├	<del> </del>	┼╌┤
<u> </u>	P-1	1.6 - 2.5	0.49 - 0.76	_		<del> </del>	-		1	1		<del>                                     </del>		$\vdash \dashv$
· · · · · · · · · · · · · · · · · · ·	P-2	3.8 - 4.5	1.16 · 1.37	1		<del>}</del>				<del> </del>		<del> </del>	<del>                                     </del>	
	P-3	6.0 - 6.8	1.83 - 2.07	1		<del>                                     </del>			<del>                                     </del>	<b></b> -		<del>                                     </del>	t	1
<del></del>	D-4	10.2 - 11.0	3.11 - 3.35	+		<del>                                     </del>	<del>                                     </del>	<del>                                     </del>	<del>                                     </del>	100	97	79	20	1
<b></b>	P-5	15.3 · 16.1	4.66 · 4.91	1		<del>                                     </del>			<del>                                     </del>	<del>                                     </del>	<del></del>	<del>                                     </del>	<del> </del>	╁╼┦
<del>                                     </del>	P-6	19.0 - 19.8	5.79 - 6.04			t	<del>                                     </del>	<b></b>	<del>                                     </del>			<del>                                     </del>	<del>                                     </del>	$\vdash \vdash$
<del></del>	P.7	24.2 - 24.8	7.38 · 7.56	1 -		<del>                                     </del>	<del>                                     </del>		<del>                                     </del>	<b>†</b>		<del>                                     </del>	<b>†</b>	10
<b></b>	P.7	24.8 · 25.4	7.56 - 7.74	1		<del>                                     </del>	<del> </del>	<b></b>	<del>                                     </del>	<del> </del>		<del> </del>	<del> </del>	+-7
<del></del>	P.7	25.4 · 26.0	7.74 - 7.92	1		<del>                                     </del>	<b></b> -	<del>                                     </del>	<del>                                     </del>	1-1				
<del>                                     </del>	P.7	26.0 26.5	7.92 - 8.08	1		<del>                                     </del>	<del>                                     </del>	<b></b>	<del></del>	t —		1	t	$\mathbf{H}$

(a) Sample types

(c) USCS - Unified Soil Classification System

SS - Standard split spoon

P - Pitcher

(d) \* Indicates that test has been performed and results are included in this report

D - Fugro Drive

B, b - Bulk

(b) NP - Not Plastic

									_				_					
					<u> </u>	L	<u> </u>	<u> </u>	<u> </u>			SM	106,1	1700	16.9	77.9	0.59	
					<u> </u>	<u> </u>	L	L	L	<u> </u>		SP-SM	117,9	1889	10.2	64.0	0.43	
							L					SP	101.2	1621	12.1	49.3	0.66	
												SM	122.2	1958	10.8	77.0	0.38	
			L		L	<u> </u>	L	L										
												SM	103.5	1658	7.9	33.9	0.63	
						ſ						SM	109.1	1748	6.6	32.8	0.54	
												SP-SM	118.2	1894	6.9	43.6	0.43	
	100	97	93	78	67	62			31	22	9	CL	104.3	1671	17.6	77.4	0.62	
											NP	SM	126.2	2022	11.7	94.6	0.34	
												SM	120.2	1926	12.4	83.2	0.40	
68	60	55	45	27	17	13				Γ –		GM	95.3	1527	9.0	31.8	0.77	
												GM	120.9	1937	13.4	92.3	0.39	
												SM	116,9	1873	6.8	41.8	0.44	
												SM	122 0	1954	7.5	52.8	0.38	
100	98	92	85	71	60	52					NP	ML	107.5	1722	10.4	49.3	0.57	
88	76	63	51	31	20	16						SM	128.0	2051	8.9	76.4	0.32	
												SM	134,4	2153	7.5	80.2	0.25	
												SM	120.7	1934	8.6	58.3	0.40	
												SM	124.5	1994	10.1	77.2	0.35	
												SP-SM	121.6	1948	13.4	93.9	0.39	
												SP-SM	120.0	1922	13,4	89.6	0.40	<del></del>
							I				NP	SM	124.6	1996	12.3	94.2	0.35	
													-			1		
				I	I	[						СН	90.9	1456	20.8	66.0	0.85	

0.43				
0.31				
0.42				
0.35				
0.35 0.72				
0.47				
0.64				*
0.38				*
0.59				
0.43				
0.66 0.38				
0.38				
	J			
0.63				
0.54				
0.43				
0.62				*
0.34				
0.40				
0.77				
0.39		<u> </u>		
0.44				
0.38				
0.57				•
0.32				
0.25				
0.40				
0.35				
0.39				
0.40				
0.35				
0.85				
0.71			ł	I

	<u> </u>	<del></del>	<del></del>			*			PERCE	NT FIN	ER BY	REIGHT		
T. "	E (a)	SAMPLE I	NTERVAL		2	TANBARI	SIEA	E OPEN	ING		U S	STAI	DARO S	SIEVE
ACT 1 V 1 TY Number	SAMPLE NUMBER			BLDRS	COR	LES		GRA	VEL			SA	MD	
8 3	S =	FEET	METERS	24"	12"	8**	3"	15"	3/4"	3/8"	4	10	40	100
MD-B-15	P-8	29.0 - 29.7	8.84 - 9.05											
	D-9	35.2 - 36.0	10.73 - 10.97											
	P-10	40.5 - 41.3	12.34 - 12.59										100	99
	P-10	40.5 · 41.3	12.34 - 12.59											
	D-11	44.2 - 43.0	13.47 - 13.11											
	P-12	50.8 - 51.5	15.48 - 15.70								L	ł	L	<u> </u>
	P-13	60.0 - 60.6	18.29 - 18.47											
	P-14	70.1 - 70.9	21.37 - 21.61										L	
	P-15	80.5 - 81.3	24.54 - 24.78											
	P-16	89.0 · <b>8</b> 9.6	27.13 - 27.31											
	P-16	90.8 - 91.5	27.68 - 27.89											100
	P-16	90.6 - 90.7	27.61 - 27.65											
L	P-17	100.6 - 101.5	30,66 - 30.94			[	<u> </u>	L	L	L	L	<u> </u>	<u> </u>	<u> </u>
L	P-18	119.0 - 119.8	36.27 - 36.52	<u></u>		L			<u> </u>	<u></u>	100	98	82	57
L	P-19	140.8 - 141.6	42,92 - 43,16	<u> </u>						l	<u> </u>	<u> </u>		L
	D-20	159.2 · 160.0	48.52 - 48.77										<u> </u>	
<u> </u>				1		L		L	L		<b>!</b>		<u> </u>	<b>↓</b> _
BL-B-7	P-1	0.8 · 1.6	0.24 - 0.49	1		<b>!</b>	L		<u> </u>			<u> </u>	<b>.</b>	<b> </b>
	D-2	3.7 - 4.5	1.13 - 1.37	1	L	ļ		<b>!</b>	<b></b>	ļ	ļ	<u> </u>	<b>!</b>	<b></b>
	P-3	5.0 - 5.8	1.52 - 1.77			<b>.</b>	L	<b></b>		<b>.</b>		<u> </u>	<b>!</b>	<b></b>
ļ	P-4	7.8 - 8.6	2.38 · 2.62		ļ	<b> </b>			<b> </b>	<b>!</b>	<b></b>	<b></b>	<b>.</b>	<del> </del>
	P-5	10.8 -11.0	3.29 - 3.35	1		L	100	90	79	69	59	48	26	13
	P-5	11.0 - 11.8	3.35 - 3.60	1		<b></b> _		Ĺ	L	L		<u> </u>	<u> </u>	<u> </u>
<u> </u>	D-6	14.2 - 15.0	4.33 - 4.57			L			L	L		<u> </u>	L	<b>!</b>
<u> </u>	D-7	19.2 - 20.0	5.85 · 6.10			L	100	84	84	78	72	61	35	16
ļ	P-8	25.0 - 25.7	7.62 - 7.83			L			<u> </u>	<u> </u>	L	<u> </u>	<b>_</b>	↓
	P-9	30.0 - 30.8	9.14 - 9.39			<u> </u>	L		<u> </u>	<b>!</b>	<b>.</b>		<b>↓</b>	<b></b>
	P-9	30.0 · 30.8	9.14 - 9.39	4				ļ	<b>!</b>	100	96	74	45	26
	P-9	30.8 - 31.5	9.39 - 9.60						L	L	<u> </u>			
ļ	P-10	35.0 - 35.7	10.67 - 10.88	<b>-</b> i				L	100	99	98	97	84	65
ļ	P-10	35.7 - 36.3	10.88 - 11.06	-		<b>.</b>	L	<b>├</b> ──	<b>├</b> ──	<del> </del>	<u> </u>	<b></b>	<del>                                     </del>	1
<b>}</b>	P-10	36.3 - 36.6	11.06 - 11.16	<del></del>	ļ	<del> </del>	<b> </b>	├	<del> </del>	<del> </del>	<b></b> -		├	╂╼╼┥
<b>}</b>	P-11	39.0 · 39.6	11.89 - 12.07	<del></del>		<del> </del>	<del> </del>	<del> </del>	<del> </del>	<del> </del>	<b> </b> -		<del> </del>	╂╌┥
}	P-12	45.2 - 45.8	13.78 - 13.96	<b>-</b>		<del> </del>	<b> </b> -	l	<del></del>	1	L	l ==	1	╁╦┪
<b>}</b>	P-13	49.0 · 49.7	14.94 - 15.15	<b></b>		<b>}</b> -	<b> </b> -	<b> </b>	<del> </del>	100	99	97	88	66
<del></del>	P-13	49.7 - 50.5	15.15 - 15.39	<del> </del>		<b></b>		<del> </del>	<del> </del>	}	<u> </u>	<b> </b>	<b>}</b>	
<b> </b>	D-14	50.7 - 51.5	15.45 - 15.70	<del> </del>		ļ	<del> </del>	<b></b>	<b>├</b>	<del> </del>	<del> </del>	<b>├</b> ──	├	╀╼┩
BL-8-10	P-1	0.5 - 1.2	0.15 - 0.37	1		<del> </del>	<del>                                     </del>	<del>                                     </del>	<del>                                     </del>	<b> </b>	<del> </del>	<del>                                     </del>	<del> </del>	11
<u> </u>	D-2	3.2 - 4.0	0.98 - 1.22	1				100	90	87	81	68	46	30
	P-3	6.5 · 7.7	1.98 - 2.35	1	-	t			T	100	96	86	53	35
1	P-3	7.7 - 8.5	2.35 · 2.59	1		1			1		<u> </u>	1	<del>                                     </del>	
	D-4	10.2 - 11.0	3.11 - 3.35	1		l			100	91	73	52	24	13

(a) Sample types

(c) USCS - Unified Soil Classification System

\$\$ - Standard split spoon

P - Pitcher

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0 - Fugro Orive

B, b - Bulk

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	PERCE	IT FINE	R BY I	VEIGHT							_				11	I-SITU			C	OMPACTE	7
EN	ING		U S		DARD S	SIEVE I		PART SIZE	(==)		TERBE IITS (		uscs	DRY		MOISTURE Content (\$)	SATURATION (%)		MAX	IMUM	
28/	YEL			SA	ND		211	T OR C	LAY			` .	(c)	WEIG	SHT		(\$)	VOID RATIO	DRY DE	MSITY	TEA
-	3/4"	3/8"	4	10	40	100	200	.005	.001	LL	PL	PI.		(pcf)	(kg/m³)	물용	SAT	22	(pcf)	(kg/m <sup>3</sup> )	3
													SM	88.2	1413	37.5	100.0	0.91			Π
													CL	99.3	1591	26.6	100.0	0.70			
					100	99	98	59	32	42	19	23	CL	105.5	1690	21.1	<b>9</b> 5.5	0.60			
							L					1	CL	102.9	1648	22.4	94.7	C.64			П
_				ļ	<b>!</b> _	<b>!</b>							CL	102.2	1637	25.9	100.0	0.65		<b></b> -	Н
_				<u> </u>	<u> </u>				ļ			<b>.</b>	CL	89.8	1439	31.4	96.8	0.88			Н
				<u> </u>	L		ļ	ļ					CL	95.3	1527	29.5	100.0	0.77			Н
_					<b> </b>				ŧ			L	CL	96.1	1540	28.2	100.0	0.75		<b></b> _	Н
_		$\vdash$		<u> </u>	<u> </u>	<b>}</b>	<b>.</b>		<b>.</b>			<b>}</b>	CL	104.6	1676	23.9	100.0	0.61		<b></b>	Н
					├	100	05			41	10	20	CL	101.8	1631	24.7	101.8	0.66		<b>├</b> ──	Н
<u> </u>				<b>-</b>	<del> </del> -	100	95	50	31	41	16	25	CL	100.3 99.6	1607 1596	23.8 26.3	94.3	0.68 0.69		<del>                                     </del>	Н
—			-	<del>                                     </del>	}	<del> </del>			<b>-</b>			╁	CL	98.1	1572	25.9	97.5	0.72	<del></del>	<del>├</del> ──	Н
			100	98	82	57	40		<del> </del>	<b>-</b>		NP	SM	114.0	1826	17.9	101.5	0.48	<u> </u>	<del>                                     </del>	Н
_			,00	-30	- 02	<del>- 3/</del>	10			-		1,41	CL	103.9	1664	24.4	100.0	0.62		<del>                                     </del>	Н
						<del></del>						├─┤	CL	98.1	1572	27.2	100.0	0.72			Н
						f		4	f		_			00.1	10.2		100.0	-			Н
				<u> </u>	<b></b>	<b></b>							SM	86.8	1391	8.4	24.0	0.94		<b></b>	П
													SM	102.6	1644	16.4	68.8	0.64			П
													SM	89.9	1440	10.1	31.2	0.87			П
												NP	SM	109.2	1749	7.8	38.9	0.54			П
0	79	69	59	48	26	13	10					NP	GP-GM	113.1	1812	13.6	75.3	0.49			
													SP-SM	110.9	1777	15.6	80.9	0.52			П
													SP-SM	114.2	1829	5.3	30.3	0.48			П
4	84	78	72	61	35	16	12						SP-SM	114.4	1833	9.4	53.8	0.47			Ц
				ļ		L							SP-SM	89.4	1432	17.6	53.8	0.89		<b></b>	Ц
							L						SM	92.9	1488	15.9	52.6	0.81		<b> </b>	H
		100	96	74	45	26	19	_ 5	2			NP	SM	99.9	1600	12.1	47.7	0.69		<b> </b>	Н
	100						ļ <u>.</u>		<b></b>				SM	104.9	1680	12.9	57.7	0.61		<b>├</b> ──	H
	100	<u>%</u>	98	97	84	65	54		<b> </b>	29	21	8	CL	94.5	1514	20.8	71.8	0.78		<del>                                     </del>	Н
		<u> </u>				<u> </u>	<u> </u>	<u> </u>		<b>-</b>		$\vdash$	CL	106.7	1709	12.9	60.1	0.58		<del> </del>	Н
		-	l	<b>-</b>	<del></del>	<b></b>	<u> </u>		<del>                                     </del>				CL SM	111.1 108.2	1780 1733	11.3 14.5	58.7 70.6	0.52 0.56	<del></del>	<del>                                     </del>	Н
	<del></del>		<del></del>	<del> </del>	$\vdash$	<del>                                     </del>			<del>                                     </del>	├─┤		╁╌┤	SM	98.9	1584	22.3	85.5	0.70	<b></b>	<del> </del>	Н
		100	99	97	88	66	49		<del></del>			NP		107.2	1717	11.8	55.7			<del>                                     </del>	H
		- <del></del> -		<del>  "/-</del>	<del>     </del>	<b>—</b>	70				<del> </del>	14"	SM	104.5	1674	13.7	60.3	0.61		<del>                                     </del>	H
				<del>                                     </del>	<del></del>		<b>-</b>		<del> </del>	<b>-</b>	<u> </u>	$\vdash$	SM	110.9	1777	13.0	67.8	0.52		<del> </del>	H
	$\vdash$			<b></b> -	<u> </u>	<b></b>	$\vdash$			1	<u> </u>	$\vdash$		110.5	'' <i>''</i>	13.5		1 5.52	<del>                                     </del>	<del>                                     </del>	H
	-					<del>                                     </del>					<del></del>		SM	101.7	1629	7.2	29.7	0 66		<del>                                     </del>	M
00	90	87	81	68	46	30	25	<del></del>	<del></del>			$\vdash$	SM	109.3	1751	9.9	49.5	0.54		t	£
		100		86	53	35	29		<del></del>	t	<del>                                     </del>	$\vdash$	SM	95.7	1533	17.6		0.76		†	ļ

100 mm

				18	-SITU			C	OMPACTE	D		( <b>p</b> )	~ B		8		
RBE TS (		USCS (c)	DRY U		MOISTURE CONTENT (%)	SATURATION (\$)	VOID RATIO	MAXI Dry De		OPTINUM Noisture (%)	SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	æ
PL	P1 -		(pcf)	(kg/m³)	<b>9</b> 8	SAT	22	(pcf)	(kg/m <sup>3</sup> )	5 =	259	ш	58	200	<b>1</b> 00	5	CBR
		SM	88.2	1413	37.5	100.0	0.91										
		CL	99.3	1591	26.6	100.0	0.70										
19	23	CL	105.5	1690	21.1	<b>9</b> 5.5	0.60										
		CL	102.9	1648	22.4	94.7	0.64						•				
	L	CL	102.2	1637	25.9	100.0	0.65		L	<b>[</b>	L		L				
		CL	89.8	1439	31.4	96.8	0.88		L		L		L				
		CL	95.3	1527	29.5	100.0	0.77		ļ				<b></b> _				
		CL	96.1	1540	28.2	100.0	0.75		<b></b> _		<b></b>		<b>_</b>				
		CL	104.6	1676	23.9	100.0	0.61		<u> </u>	L			<b></b>				-
		CL	101.8	1631	24.7	101.8	0.66		L	ļ		*	L				
16	25	CL	100,3	1607	23.8	94.3	0.68			ļ		*	<b>.</b>				
	Ь	CL	99.6	1596	26.3	102.9	0.69		<u> </u>			<u> </u>	<b>├</b> ──-		*	I	
	1	CL	98.1	1572	25.9	97.5	0.72		<b></b> -	<b>-</b>			<del> </del>	$\vdash$			
	NP	SM CL	114.0 103.9	1826	17.9	101.5	0.48		<b></b> -		<b>}</b>	-	<del> </del>				
		CL	98.1	1664	24.4 27.2	100.0	0.62		<b> </b>		}		}				
			96.1	1572	21.2	100.0	0.72		<b></b>	<b> </b>			<del>├</del>				
	$\vdash$	SM	86.8	1391	8.4	24.0	0.94			<del> </del>			<del> </del>	<del></del>			
		SM	102.6	1644	16.4	68.8	0.64		<del></del>	<del> </del>			<del> </del>				
	$\vdash$	SM	89.9	1440	10.1	31.2	0.87		<del>                                     </del>	<del> </del>			<del>                                     </del>				
	NP	SM	109.2	1749	7.8	38.9	0.54		<del>                                     </del>	<b>-</b>	<b></b>		f				
	NP	GP-GM	113.1	1812	13.6	75.3	0.49		<b>†</b>	t			t				
	<u> </u>	SP-SM	110.9	1777	15.6	80.9	0.52						•				
		SP-SM	114.2	1829	5.3	30.3	0.48				<b></b>		<b></b>				
	-	SP-SM	114.4	1833	9.4	53.8	0.47		<del></del>	t	<b></b>		1	•			
		SP-SM	89.4	1432	17.6	53.8	0.89		<del>                                     </del>	†	<del>                                     </del>		1				
		SM	92.9	1488	15.9	52.6	0.81			1			•				
	NP	SM	99.9	1600	12.1	47.7	0.69						1				
		SM	104.9	1680	12.9	57.7	0.61		ĵ				•				
21	8	CL	94.5	1514	20.8	71.8	0.78					•					
		CL	106.7	1709	12.9	60.1	0.58					٠					
		CL	111.1	1780	11.3	58.7	0.52								•		
		SM	108.2	1733	14.5	70.6	0.56						L				
		SM	98.9	1584	22.3	85.5	0.70		L		L		<b></b>				
	NP	SM	107.2	1717	11.8	55.7	0.57		<b></b>		L		<b>]</b>	L			
		SM	104.5	1674	13.7	60.3	0.61		<u> </u>				•				
]	[]	SM	110.9	1777	13.0	67.8	0.52		L				L	L			
			ļ	<u> </u>	ļ	<u></u>	<u> </u>	Ļ	<b> </b>	<b>.</b>			<u> </u>	L		ļ	
		SM	101.7	1629	7.2	29.7	0 66	ļ	<b>}</b>	<b></b>	ļ		<b>!</b>				<b></b>
		SM	109.3	1751	9.9	49.5	0.54	L	<u></u>	ļ							
		SM	95.7	1533	17.6	62.6	0.76	<u> </u>	<b> </b>	<del></del>		<u> </u>	<b></b> -	ļ	<u> </u>	<u> </u>	<b>_</b>
	<u> </u>	SM	98.1	1572	13.2	49.7	0.72		ļ	<b> </b>	ļ		<b>!</b>	L			
	NP	SW-SM	113.7	1821	5.6	31.1	0.48	L	L	L		<u> </u>	ـــــــــــــــــــــــــــــــــــــــ	<u> </u>		<u> </u>	L

SUMMARY OF LABORATORY TEST RESULTS \*OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE II - 5 - 1 7 OF 10

<u>UBRO NATIONAL INC.</u>

AFY-01

	<u> </u>								PERCE	IT FINE	R BY	VE I GHT		
À "	E :R (a)	SAMPLE I	NTERVAL		2.	TANDARI	SIEV	E OPEN	ING		U S	STAN	DARD S	IEVI
ACT I V I TY Number	SAMPLE NUMBER			BLDRS.	COBE	LES		GRA	VEL			SA	ND	
2 Z	SA	FEET	METERS	24"	12"	6"	3"	1½"	3/4"	3/8"	4	10	40	10
BL-B-10	D-5	15.2 - 16.0	4.63 - 4.88											
	D-6	20.2 - 21.0	6.16 6.40											
	P.7	25.0 - 25.6	7.62 - 7.80											
	D-8	30.2 - 31.0	9.20 - 9.45											
	D-9	35,2 - 36.0	10.73 - 10.97					100	96	89	79	66	26	16
	D-10	40.2 - 41.0	12.25 - 12.50											
	P-11	46.6 - 47.1	14.20 - 14.36											
	D-12	50.2 - 51.0	15.30 15.54											
	D-13	60.2 - 61.0	18.35 - 18.59											
	P-14	70.8 - 71.4	21.58 · 21.76											
	P-15	81.8 · 82.5	24.93 - 25.15							100	96	72	16	8
	P-16	90.9 - 91.8	27.71 - 27.98					100	79	69	60	49	24	8   18
	D-17	100.2 - 101.0	30.54 - 30.78											
MD-T-1	b-2	6.0 - 7.0	1.83 - 2.13							100	99	97	84	2
MD-T-2	B-1	0.5 - 2.0	0.15 - 0.61							100	99	96	80	5
	p-5	10.0 - 11.0	3.05 - 3.35											
	b-3	12.0 - 13.0	3.66 - 3.96									100	97	71
MD-T-3	B-1	0.5 - 2.0	0.15 - 0.61											10
	b-2	8.0 - 9.0	2.44 - 2.74									100	98	
MD-T-5	B-1	0.5 · 2.0	0.15 - 0.61					100	98	96	90	81	48	3
MD-T-6	B-1	0.5 - 2.0	0.15 - 0.61					100	97	89	83	75	59	10 W
	b-2	4.0 - 5.0	1.22 - 1.52				100	89	81	58	44	32	17	
	h-3	8.0 - 9.0	2.44 - 2.74											
MD-T-7	B-1	0.5 - 2.0	0.15 - 0.61									100	99	8
MD-T-8	B-1	0.5 - 2.0	0.15 - 0.61				100	95	89	77	66	55	33	7
MD-T-9	B-1	0.5 - 2.0	0.15 - 0.61									100	97_	3
	b-2	5.0 - 6.0	1.52 · 1.83									100	99	9
MD-T-10	B-1	0.5 · 2.0	0.15 - 0.61				100	85	69	50	41	33	24	1
	b-2	5.5 - 6.5	1.68 - 1.98					100	85	71	58	46	30	_ 7
MD-T-11	B-1	0.5 - 2.0	0.15 · 0.61					100	92	80	71	58	43	3
	b-2	3.0 · 4.0	0.91 - 1.22						100	93	86	76	61	8
MD-T-12	B-1	0.5 - 2.0	0.15 · 0.61				100	76	58	47	40	36	30	3
	b-2	4.0 - 5.0	1.22 - 1.52					100	96	93	88	84	76	
<u></u>	b-3	8.0 - 9.0	2.44 - 2.74				100	69	46	40	37	33	28	
MD-T-13	B-1	0.5 - 2.0	0.15 - 0.61				100	73	52	34	26	22	17	
MD-T-14	B-1	0.5 · 2.0	0.15 - 0.61								100	96	81	
MD-T-15	B-1	0.5 · 2.0	0.15 - 0.61						100	99	98	93	77	
MD·T·16	B-1	0.5 - 2.0	0.15 - 0.61					100	89	81	73	60	31	3
	b-2	4.0 · 5.0	1.22 - 1.52				100	81	61	51	45	38	22	
	b-4	9.0 10.0	2.74 - 3.05					100	97	96	90	75	49	
MD-T-17	B-1	0.5 - 2.0	0.15 - 0.61						100	98	95	89	67	
	b-2	5.0 6.0	1.52 · 1.83					100	86	72	63	54	37	

(a) Sample types

(c) USCS - Unified Soil Classification System

SS - Standard split spoon

P - Pitcher

D - Fugro Drive

(d) \* Indicates that test has been performed and results are included in this report

B,b - Bulk

(b) MP - Not Plastic

ERCEN	T FINE	R BY W	EIGHT											- 11	N-SITU			C	OMPACTE	
MG		U S	STAN	DARD S	IEVE N	10.	PART SIZE			TERBE IITS (		USCS	DRY	UNIT	MOISTURE Content (\$)	SATURATION (%)		MAX	MUM	OPTINUM MOISTURE
EL			SA	ND		SIL	T OR C				, D/	(c)	WEI	GHT	S H S	<b>S</b> (%)	V010 RAT10	DRY DE	NS I TY	
3/4"	3/8"	4	10	40	100	200	.005	.001	LL	PL	PI		(pcf)	(kg/m <sup>3</sup> )		SAI	22	(pcf)	(kg/m3)	2 =
												SP	109.8	1759	8.5	43.1	0.53			
												SP-SM	115.3	1847	10.0	58.7	0.46			
												SP	107.8	1727	13.1	63.0	0.56			
												SP	113.6	1820	10.7	59.6	0.48			
96	89	79	66	26	16	13						SM	116.8	1871	10.3	63.0	0.44			
								L				SM	106.9	1713	14.1	66.2	0.58			
												SP·SM	112.0	1794	13.9	74.3	0.50		<u> </u>	
										Ĺ		SP-SM	110.6	1772	9.6	49.7	0.52		<b></b>	
<b></b>											L	SM	113.5	1818	7.7	43.1	0.48	L	ļ	
<b></b>								L		ļ		SP	110.1	1764	14.7	75.0	0.53		<b> </b>	1
	100	96	72	16	8	6					<b>_</b>	SW-SM	104.8	1679	19.4	86.3	0.61	ļ		$\vdash$
79	69	60	49	24	15	13			<u> </u>		<del></del>	SM	105.6	1692	21.7	98.6	0.60		<del>                                     </del>	1
						<del></del> -		<b></b>	L		<u> </u>	SM	121.0	1938	10.9	75.7	0.39	<b></b>	<b>}</b>	
<b></b>	100	99	97	84	20	14	<b> </b>	<b>-</b>		<b> </b>	}	SM		<del> </del>	<del> </del>		<del> </del> -		<del> </del>	╀┈┥
<b></b>	100	99	96	80	50	30				<del> </del>	<b></b>	SC		<del> </del>	<del>├</del> ──		<b> </b> -		<del></del>	<b>├</b> ─┤
<del></del>	100	-55	90	80					55	25	30	CH		<del> </del>	h		<del> </del> -		<del> </del>	1 1
<del> </del>			100	97	75	55		<b></b> -	-33		NP	ML		<del> </del>	<del> </del>				<del>                                     </del>	
			100	- 37	100	99		<b></b>	49	32	18	ML		<del> </del>	<del> </del>		<u> </u>			1 1
			100	98	44	32			<del>-</del>	<u> </u>	-~-	SM		f		<u> </u>	<u> </u>	<del></del>	†	1 1
98	96	90	81	48	31	22				·		SM					<del>                                     </del>	125.0	2003	10.2
97	89	83	75	59	39	29					NP	SM			1		<b> </b>	125.0	2003	11.
81	58	44	32	17	9	7						GW-GM					<u> </u>			
									35	18	17	SC		1						
			100	99	96	94						CL							1	
89	77	66	55	33	23	19						SM								
			100	97	91	88	17	4	70	49	21	MH						69.1	1107	49.
	I		100	99	98	98	58	34	79	35	44	СН								
69	50	41	33	24	17	13				L		GM								
85	71	58	46	30	20	15				<u> </u>	L	SM					ļ			
92	80	71	58	43	35	32				ļ	L	SM	L	ļ	<b> </b>		L		<b></b> _	<del>∐</del> ∐
100	93	86	76	61	52	45				<u> </u>	<b> </b>	SC		<del> </del> -	<b> </b>		<u> </u>	122.0		<del>▎</del> ▃▋
58	47	40	36	30	21	15			22	21	<del> </del>	GC SM		<del> </del>	<b> </b>		<b> </b> -	137.0	2195	7.
96 46	93	88 37	84 33	76 28	59 23	37 19			22	21	1	GC	ļ <u></u> -	}	<del>   </del>		<b></b> -	<u> </u>	<u> </u>	<b>├</b> ─┫
52	34	26	22	28 17	12	8					<b>-</b>	GW-GM	<del></del>	<del> </del>	1	<u> </u>	<b> </b> -	<del></del>	├	+
-52	-34								20	17	<del>  ,.  </del>			<del>                                     </del>	╂──┤			116.0	1050	1
100	99	100 98	96 93	81 77	52 56	38 34			28	<del>- ' '</del> -	11	SC SM		<del> </del>	<del>                                     </del>	ļ <u> </u>		126.9	1858	15. 10.
89	81	73	60	31	20	16				<del> </del>	<del>                                     </del>	SM		<del>                                     </del>	<del> </del>		├	120.9	2033	- '4
61	51	45	38	22	10	7			<u> </u>	<del> </del>	$\vdash$	GP-GM	<del></del>	<del> </del>	<del>                                     </del>		<del> </del> -		<del></del>	+4
97	96	90	75	49	37	32		L		├	$\vdash$	SM		<del>                                     </del>	<del>                                     </del>	<del></del>	<del>                                     </del>		<del> </del>	<b>┼</b> ┩
100	98	95	89	67	41	30			39	21	18	SC	<del></del>	<del>                                     </del>	<del>                                     </del>		<del>                                     </del>	112.0	1794	172
86	72	63	54	37	24	17			<u> </u>	<u> </u>	- <u>`</u> -	SM		<b>-</b>	<b></b>				<del> </del>	

System

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			18	-SITU			C	OMPACTE			<del>©</del>	_ <u>~</u>		*		
<b>3</b>	USCS (c)	DRY U	UNIT Sht	MOISTURE Content (\$)	SATURATION (\$)	VOID RATIO	MAXI DRY DE	NSITY	OPTIMUM Moisture (%)	SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	CBR
PI		(pcf)	(kg/m³)	<b>3</b> 5	SA	25	(pcf)	$(kg/m^3)$	0 ×	2 2 2	1	5	0	100	5	23
	SP	109.8	1759	8.5	43.1	0.53										
	SP-SM	115.3	1847	10.0	58.7	0.46										
	SP	107.8	1727	13.1	63.0	0.56										
	SP	113.6	1820	10.7	59.6	0.48										
	SM	116.8	1871	10.3	63.0	0.44									. *	
	SM	106.9	1713	14.1	66.2	0.58		L				<u> </u>				
	SP-SM	112.0	1794	13.9	74.3	0.50										
	SP-SM	110.6	1772	9.6	49.7	0.52										
	SM	113.5	1818	7.7	43.1	0.48							₹			
	SP	110.1	1764	14.7	75.0	0.53										
	SW-SM	104.8	1679	19.4	86.3	0.61						L				
	SM	105.6	1692	21.7	98.6	0.60			ļ							
	SM	121.0	1938	10.9	75.7	0.39										
			<b></b>	L					L							
	SM								L			ļ				
	SC								<b> </b>							
30	СН								L							
NP	ML	<u> </u>		<b></b>					<b> </b>			<u> </u>				
18	ML		<b>├</b>	L					<b> </b>							
1	SM		<u> </u>	L	<u> </u>		107.0									
	SM	L	ļ			ļ	125.0	2003	10.7							
NP	SM		<b></b>		L	L	125.0	2003	11.0			<b> </b>				
	GW-GM		ļ	<u> </u>	L	<b></b>						<b> </b>				
17	SC		ļ	ļ		ļ			<b></b>			<b> </b>				
	CL		<b></b> _		L	ļ						<b> </b>				
	SM	<i>.</i>	<b></b> _		<b></b> _	<u> </u>										
21	МН		ļ	<b>}</b>	<u> </u>	ļ <u>'</u>	69.1	1107	49.8			<b>!</b>				
44	CH		ļ	<b></b>		ļ										
1	GM		L	<b></b>		<b> </b> _										
4	SM		<b></b> -	<b>_</b>	<u> </u>	<b>-</b>						<b> </b>				
<del>-</del>	SM SC		<b>{</b> -	<b> </b>	<u> </u>			ļ				<del> </del>				
4	GC		<b>├</b> ──	<b></b>	<del></del>	<b></b>	137.0	2105		<b></b>		<del> </del>	L			
1.1	SM		<del> </del>	<del> </del>	<b> </b> -		137.0	2195	7.0				L			┝╌┥
1	GC		<del> </del>	ļ	<u> </u>	<del> </del> -	ļ	<del> </del>	<u> </u>		<u> </u>	<del> </del>	<u> </u>			<b>├</b> ── <b>∤</b>
4	GW-GM	<del></del>	<del> </del>	<b> </b>	<b></b> -			<del> </del>	<b></b>			<del> </del> -	<del> </del>			<b>├</b> ──┩
			<del> </del>	<del> </del>	<del> </del>		116.0	1056	<u>                                   </u>	<b> </b>		<b> </b>	<b> </b> -			$\vdash$
11	SC	L	<del> </del>		<del>                                     </del>		116.0	1858	15.5			<b> </b>	<b></b>	<b> </b>		
11	SM		<del> </del>	<del></del>	<del> </del>	<del> </del>	126.9	2033	10.2	<b> </b>		<b>}</b> ——			<b> </b>	-∸-
╃	SM		<del> </del>	<del> </del>	<u> </u>			<b></b> -	}		<u> </u>					
4	GP-GM	<u> </u>	<del> </del>	<b></b> -	<del> </del>	<del>                                     </del>		<del> </del>	<b>├</b> ──┤			<b> </b>				<b>  </b>
٠.,	SM		<del> </del>	<b></b>	<b> </b> -		1120	1704	172	<b> </b>						┝╌┥
18	SC	<b></b> _	<del> </del>	<b></b> -	<b></b> -		112.0	1794	17.2		<b></b> -					<u> </u>
	SM		L	L	L	L		<u> </u>	1			L				

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

TABLE 11 - 5 1 8 OF 10

UBRO NATIONAL I

AFY-01

	(8)								PERCE	IT FINE	ER BY V	EIGHT		
ACT I V I TY Number		SAMPLE I	NTERVAL		\$.	TANDARI	SIEV	E OPEN	ING		U S	STAN	DARD,	SIEVE
ACT 1 V !	SAMPLE			BLDRS	COBS	LES		GRA	VEL			SA	ND	
S S	\$ Z	FEET	METERS	24"	12"	6"	3"	1½"	3/4"	3/8"	4	10	40	100
MD T-18	B-1	0.5 - 2.0	0.15 - 0.61						100	98	94	87	66	41
	b-2	2.5 - 3.5	0.76 - 1.07											
MD-T-19	B-1	0.5 · 2.0	0.15 - 0.61						100	94	90	83	69	55
MD-T-20	B-1	0.5 - 2.0	0.15 - 0.61					100	98	95	91	85	71	55
	b-2	4.0 - 5.0	1.22 - 1.52				100	87	74	54	<b>3</b> 9	23	8	3
				ļ					L					<b>1</b>
BL·T·14	B-1	0.5 - 2.0	0.15 - 0.61	<b> </b>			100	88	60	41	30	22	12	8
BL-T-15	B-1	0.5 - 2.0	0.15 - 0.61	L				100	96	73	64	52	28	16
BL-T-17	B-1	0.5 - 2.0	J.15 · 0.61	-			<u> </u>						100	99
BL-T-18	B-1	0.5 - 2.0	0.15 - 0.61	<b> </b>					L		L	100	90	70
BL-T-19	B-1	0.5 - 2.0	0.15 - 0.61	<b></b>			L					100	87	58
<b>L</b>	b-3	7.0 · 8.0	2.13 - 2.44	<b>}</b> !	ļļ	ļ		<b> </b>	<b> </b>		<b></b>			<del> </del>
BL·T·20	<u>B</u> 1	0.5 2.0	0.15 - 0.61	<u> </u>					<b> </b>			100	99	94
<b></b>	b 2	7.0 - 8.0	2.13 - 2.44	<b> </b>				ļ	100	96	93	87	54	13
BL-T-21	b-2	4.0 - 5.0	1.22 - 1.52			<u></u>			<u></u>			L	100	98
BL-T-22	8-1	0.5 - 2.0	0.15 - 0.61	<b>!</b>			L		100	97	95	90	67	37
<u> </u>	b-3	11.0 · 12.0	3.35 - 3.66	<b>.</b>	ļ i			100	96	94	93	91	66	23
BL-T-24	B-1	0.5 - 2.0	0.15 - 0.61	<del> </del>				ļ		100	99	94	78	57
MD-P-1	B-1	0.5 - 2.0	0.15 - 0.61	<del> </del>			<b></b> -	<b></b> -				100	98	89
	0-2	6.0 - 7.0	1.83 - 2.13	1		l					100	99	85	29
MD-P-2	b-1	0.5 - 2.0	0.15 - 0.61	1										
MD-P-4	B-1	0.5 - 2.0	0.15 - 0.61					100	94	91	85	78	56	34
	b 2	6.0 - 7.0	1.83 · 2.13	1					-	100	99	97	85	62
MD-P-6	b-2	4.0 · 5.0	1.22 - 1.52				100	87	81	70	58	46	26	13
MD-P-8	b-1	0.5 - 1.5	0.15 - 0.46	1					100	97	88	76	52	37
MD-P-10	b-3	8.0 - 9.0	2.44 - 2.74	1				100	92	81	72	63	37	26
MD-P-12	b-1	0.5 - 2.0	0.15 - 0.61											
MD-P-13	b-1	0.5 - 2.0	0,15 - 0,61											
MD-P-14	b⋅1	0.5 - 2.0	0.15 · 0.61											
MD-P-16	b-2	2.0 - 3.0	0.61 - 0.91					100	85	67	54	43	24	15
	b-4	9.0 - 10.0	2.44 - 3.05					100	88	78	68	58	46	31
MD-P-19	b-2	4.0 - 5.0	1.22 - 1.52				100	90	56	40	26	17	10	8
MD-P-20	b-1	0.5 - 2.0	0.15 - 0.61					100	88	81	73	65	53	38
	b-3	8.0 - 9.0	2.44 - 2.74				100	91	66	56	46	38	25	19
MD-P-21	b-1	0.5 · 2.0	0.16 0.61						100	99	96	93	86	67
	b-2	4.0 - 5.0	1.22 - 1.52			100	80	60	52	46	43	39	33	2
MD-P-24	b-2	5.0 - 6.0	1.52 - 1.83										100	9
MD-P-25	b-1	0.5 - 2.0	0.15 - 0.61									100	99	7
	ხ∙3	7.0 - 8.0	2.13 - 2.44										100	44
MD-P-26	b-1	0.5 - 2.0	0.15 - 0.61											
MD-P-27	b-1	0.5 - 1.0	0.15 - 0.30							100	97	90	75	4
	0-2	1.0 - 2.0	0.30 - 0 51					100	91	67	48	33	21	12

## NOTES:

(a) Sample types

(c) USCS - Unified Soil Classification System

\$\$ - Standard split spoon

P - Pitcher

D - Fugro Drive

(d) \* Indicates that test has been performed and results are included in this report

B.b - Bulk

MP - Net Plastic

1	59	40	19	мн	
				SM	
	67	32	35	CH	
10			NΡ	ML	I I I I I I I I I I I I I I I I I I I
				SP-SM	
	30	24	6	ML	
				SM	
				SM	
	26	19	7	SM - SC	
21	61	29	32	СН	
				SM	
	32	17	15	CL	
	36	22	14	SC	
				SM	
				SP-SM	
				SC	
				SM	
	30	11	19	CL	
	42	22	20	CL	
	29	18	11	CL	
				GW-GM	
				SM	
				GP-GC	

			18	-SITU			C	OMPACTE	)		<del>©</del>	_ <u>=</u>		3		
RG (b)	(c)	DRY (	JNIT GHT	IISTURE Intent (%)	SATURATION (\$)	VOID Ratio	MAXI DRY DE	MUM NSITY	OPTIMUM Moisture (%)	SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONF.MED COMPRESSION	DIRECT SHEAR	CONSOLIDATION	CHEMICAL	œ
PI		(pcf)	(kg/m³)	물음	SAI	22	(pcf)	(kg/m <sup>3</sup> )	5 =	2 2 2	=	55	200	53	3	CBR
	SM															
13	SC															
6	SM															
	SC		<u> </u>													
	GW															
	GP-GM															
	SM								L			L				
10	CL									2.72					*	
19	MH		L													
	SM															
35	СН		<u> </u>			<u> </u>						<u> </u>				
NP	ML		ļ	<u> </u>								ļ				
-	SP-SM		<u> </u>							<b></b>						
6	ML		<u> </u>									<u> </u>				
	SM		<u> </u>			<u> </u>										
-	SM		<b></b>						<u> </u>			<b></b>				
7	SM - SC	<del></del>	<b>├</b>								-	<b></b> -	——			
1 22	011		<b>}</b>			<b>├</b>	100.0	1634	22.0							
32	CH SM		<b>-</b>	<b></b>			102.0	1634	23.0		_					*
1			<del> </del> -			⊢⊣						-				
15 14	CL SC					<b>├</b>	122.5	1962	11.1							
+ '*-	SM		<del>}</del>	<del>}</del>	<del> </del>		122.5	1902	<del>'-'-</del> -			├				
	SP-SM		<del> </del>	<del>                                     </del>					├			<del>                                     </del>				
+	SC SC		<del></del>	<del></del>	<u> </u>	-		<del></del>	<del>-</del>	-		<del></del>				
4	SM					$\vdash$		<u> </u>	<del> </del>	<b></b>		<del>                                     </del>				
19	CL		<del>                                     </del>		<b></b>			<del> </del>	<del>                                     </del>	<b> </b>		<b>!</b>				
20	CL		<del>                                     </del>	<b> </b>		<b>-</b>			<u> </u>							
11	CL			<del>                                     </del>	<del></del>	╁╌╌┤	<u> </u>	<b></b> -	<del> </del>	<b>-</b>		<del>                                     </del>				
	GW-GM			<del>                                     </del>		$\vdash$		$\vdash$								
	SM		<del>                                     </del>		<u> </u>			<b>-</b>	<b> </b>							
	GP-GC			1	1											
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	SM		$\Gamma$													
	GM															
7	CL-ML															
NP	SM															
	SC			i												
14	CL															
	SM															
	GW-GM															

SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - SMO

TABLE II - 5 - 1 9 OF 10

UBRO NATIONAL INC.

AFY-01

	(a)								PERCE	N FINE	ER BY	NEIGHT		
ACT I V I TY NUMBER		SAMPLE	NTERVAL		17	:HUIHU	STEVE	0051	INE		Ų :	STAN	DARD	SIEVE I
ACT I V I 1	SAMPLE Number			BLJRE.	פשנונ	1		GR/	IVE.			SA	ND	
Z Z	S	FEET	METERS	'A'	,	i"	4.7	.;;*	5/2"	ડ ⁄દ"	4	10	40	100
MD-P-27	b-3	3.0 4.0	1.31 .22						ini	Ġί	9€	95	84	50
MD-P-28	0-3	5.0 / J	.30 1. 1						101	Ðť.	94	-33	74	53
MD-P-29	B-1	ე.წ 2.ე	1. 5 1.37						UDI	9i	94	91	71	39
MD-P-33	p-1	1.5 2.0	1, 15 1.31				1DI	(	13		4£.	3	18	12
	υ-2	3.5 4.5	1.07 .37				11.77	ų.	90	RK.	78	64	48	39
MD-P-34	B-1	0.5 2.0	0.15 0.35	<del></del>			1131	BF	75	· ~.	6ť	58	49	40
MD-P-35	B-1	0.5 2.0	J. '5 J.3'	<del></del>					<del></del>	101	96	86	67	46
	8-2	4.0 - 5.0	1.22 .52	<del></del>				1131	98	442	80	55	23	12
MD-P-37	b-2	3.0 4.0	).31 1.22	<del></del>			(D)	5.0	<u> </u>	6(	3ċ	27	13	$\epsilon$
MD-P-38	B-1	0.5 2.0	1. 5 1.3	<del></del>					100	ði.	96	BF.	69	50
MD-P-39	B-1	0.5 2.0	1. '5 1.37	<del>-</del>						100	93	81	56	42
MD-P-40	B-1	0.5 2.0	1. 5 1.37	+					10[	9.7	75	57	36	21
MD-P-41	B-1	0.5 - 2.0	1.5 1.51	+					- 6/	100	9¢	92	74	50
MD-P-42	B-1	0.5 2.0	3. 5 1.37	+				10(	86	76	73	66	53	40
MD B 46	0-3	7.0 8.0	2, 3, 2,44	+			101	BI	68	£, .	49	39	22	14
MD-P-47	b-1 B-1	0.5 2.0 0.5 2.0	1,15 1,31	+	<del></del>	101	IM	RI-	R:		66	54 29	<b>35</b>	24
MD-P-47	B-1	J.5U	J 7 J. J.	+		UNI	71	<u>ni</u>	45	4[	34	26	17	+ -
BL-P-15	B-1	0.5 2.0	1.15 1.31	+						100	9¢	96	83	40
BL P 17	b-1	0.5 2.0	0.15 1.31	+					100	95	8-	76	53	40
BL P 21	B-1	0.5 2.0	J. '5 J.5'	+					100	96	98	96	85	63
J	<u> </u>	<del> </del>	3. 13 30.21	+					- 1/1	<del></del>		<del>  "</del>	-0~	1 33
			<del> </del>	+							<del> </del>	<del> </del>	<del> </del>	1
		<del></del>	<del> </del>	1					<del></del>	•	<del> </del> -	<del> </del>	<del>                                     </del>	╂╌╌┪
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## NOTES:

(a) Sample types (c) USCS - In an In I had the out System

SS - Standard split spoon

P - Pitcher

DAMFOR FRANCES SET SET SETECTOR \* (D) Troops after a the transfer of the structure one

D - Fugra Orive

troder a thin amplicative as a colour

8,6 - Bulk

(b) NP - Not Plastic

								 			 	_	_	
100	9¢	9€	95	84	50	27				SM			L	
101	Ðť.	96	£~	74	53	37	[			SC				
101	9ť	94	91	71	39	24				SM				
B:	7.	48	3:	18	12	8				GP-GM				
9:	₽¥.	78	64	48	39	33				SM				
70	~:	6ť	58	49	40	34				GC				
	100	96	86	67	46	29				SM				
96	92	80	55	_23	12	8				SW-SM				
8:	6(	3ć	27	13	€	4				GP				
10(	ðέ	96	88	69	50	39				SC				
	100	93	81	56	42	31				SM	}			
100	85	75	57	36	21	14				SC				
	100	9¢	92	74	50	29				SC				
8í	7£	73	66	53	40	32				SM				
68	5"	49	39	22	14	12				GW-GM				
R:		66	54	35	24	20				SC	Í			
4:	4(	34	29	17	9	7				GP-GM				
	ומר	96	98	83	40	25				SM		<u> </u>		125.0
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PBE		,,,,,	DRY	UNIT	RE T	<b>₹</b>		MAXI	MUM	JRE	2 2	¥	SSI		DAT	=	
12 (	(ם	USCS (c)	WEI	GHT	MOISTURE Content (%)	SATURATION (\$)	YOID RATIO	DRY DE	MSITY	OPTIMUM Moisture (\$)	SPECIFIC GRAVITY OF SOLIDS	TRIAXIAL (d)	UNCONFINED COMPRESSION	DIRECT Shear	CONSOLIDATION	CHEMICAL	_
FL.	PI	\ \ \ \	(pcf)	(kg/m <sup>3</sup> )		SAT	22	(pcf)	(kg/m³)		SP GF	<b>T</b>	35	5	<b>160</b>	H)	CBR
		SM													_		
		SC															
		SM				,											
		GP-GM															
		SM															
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	Ĺ	SW-SM		<u> </u>	L												
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		SM		<b></b>	<b></b>	ļ	L				L						
		SC		↓	<u> </u>						<b></b>	<u> </u>		-			
	ļ	SC		<b> </b>	·		<b>-</b>										<b></b>
<b>-</b>	<b></b>	SM	<u> </u>	<b></b>			<b>_</b>		<u> </u>	<b></b>	<b></b>						
<u> </u>		GW-GM		ļ	L		<b> </b> -				<b></b>						
-		SC		<b>├</b> ──	ļ	<u> </u>				<b> </b>	<b> </b>						
-		GP-GM		<b>-</b>			├		<u> </u>		<b>├</b> ──-		$\vdash$				
-		- CA4		<b></b>	<del> </del>			125.0	2003	10.9			-				
		SM SC		<del>├</del> ──			-	125.0	2003	10.5	<b> </b>	-	<del></del>				
		SM	<del></del>	┼──	<del>                                     </del>		├	122.5	1962	11.5	<b></b>						┈┤
	<u> </u>	3/91	<u> </u>	<del>                                     </del>	<del></del>		╁──	122.5	1302	11.5							
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SUMMARY OF LABORATORY TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 9000

TABLE II - 5 - 1 10 OF 10

<u>vero national inc</u>

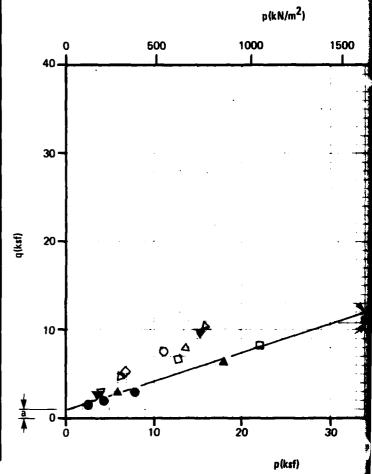
AFY-01

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SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE I	NTERVAL	SOIL TYPE	TYPE OF	DRY D	ENSITY	MOISTURE CONTENT	CONF PRESSU	INING JRE(03)	DEVI	MUM ATOR SO <sub>1</sub> -O <sub>3</sub> )	ST
			FEET	METERS		TEST	pcf	kg/m <sup>3</sup>	(%)	ksf	kN/m <sup>2</sup>		kN/m²	•
	MD-B-3	P-7	10.5 - 11.1	3.20 - 3.38	СН	CD	83.8	1342	27.0	1.0	48	7.0	335	
		P-7	11.1 - 11.7	3.38 - 3,57	СН	CD	94.4	1512	22.1	4.0	192	15.3	733	0
	MD-B-9	P-8	31.6 - 32.2	9.63 - 9.81	СН	CD	82.4	1320	34.1	1.6	77_	6.7	321	0
		P-8	32.2 · 32.8	9.81 - 10.00	СН	CD	81.5	1306	<b>35</b> .5	3.0	144	9.0	431	0
		P-8	32.8 - 33.4	10.00 - 10.18	СН	CD,	93.5	1498	26.5	6.0	287	15.8	757	9
7/	MD-B-10	P-12	34.2 - 34.8	10.42 - 10.61	sc	CD	103.2	1653	18.4	1.7	81	6.1	292	
		P-12	34.8 - 35.4	10.61 - 10.79	sc	CD	98.9	1584	19.3	7.1	340	19.9	953	9
0	MD-B-10	P-17	69.1 - 69.6	21.06 - 21.21	CL	CD	101.0	1618	23.6	3.5	168	9.4	450	9
		P-17	69.7 - 70.2	21.24 - 21.46	CL	CD	99.9	1600	23.8	7.0	335	12.8	613	Q
		P-17	70.3 - 70.8	21.43 - 21.58	CL	CD	100.1	1604	23.2	14.0	670	16.6	795	9
•	MD-B-15	P-7	25.4 - 26.0	7.74 - 7.92	ML	CD	99.3	1590	25.4	1.2	57	3.1	148	g
		P-7	24.8 25.4	7.56 - 7.74	ML	CD	91.2	1461	27.3	2.4	115	4.1	196	
		P.7	24.2 - 24.8	7.38 7.56	ML	CD	93.1	1491	27.3	5.0	239	6.0	287	
N.	MD-B 15	P-16	89.0 - 89.6	27.13 - 27.31	CL	CD	101.8	1631	24.7	3.0	144	6.0	287	
		P-16	90.8 - 91.5	27.68 · 27.89	CL	CD	100.3	1607	23.8	12.1	579	12.7	608	
<b>∀</b> ′	BL-B-7	P-10	35.0 - 35.7	10.67 - 10.88	CL	CD	94.5	1514	20.8	1.7	81	6.2	297	
		P-10	35.7 - 36.3,	10.88 - 11.06	CL	CD	106.7	1709	12.9	6.0	287	19.7	943	П
														П

NOTES: 
$$p = \frac{\sigma_1 + \sigma_3}{2}$$
,  $q = \frac{\sigma_1 - \sigma_3}{2}$   
 $c = \frac{a}{\cos \phi}$ ,  $\phi = \sin^{-1}(\tan \alpha)$ 

-					MAX	MUM	-			
Y DI	ENSITY	MOISTURE CONTENT	CONF PRESSU		DEVI	ATOR (0 <sub>1</sub> -0 <sub>3</sub> )	STRAIN RATE		ESION C)	FRICTION
4	kg/m 3	(%)	ksf	kN/m²	ksf	kN/m <sup>2</sup>	(% min.)	ksf	kN/m²	
. 88	1342	27.0	1.0	48	7.0	335	0.05_	1.2	57	35°
1	1512	22.1	4.0	192	15.3	733	0.05	1.4	3,	
4	1320	34.1	1.6	77	6.7	321	0.05			
5	1306	35.5	3.0	144	9.0	431	0.04	1.0	48	30°
5	1498	26.5	6.0	287	15.8	757	0.05			
:2	1653	18.4	1.7	81	6.1	292	0.05	0.5	24	34°
9	1584	19.3	7.1	340	19.9	953	0.05	0.5	24	
.0	1618	23.6	3.5	168	9.4	450	0.07			
.9	1600	23.8	7.0	335	12.8	613	0.07	1.3	62	15°
1.1	1604	23.2	14.0	670	16.6	795	0.07			
.3	1590	25.4	1.2	57	3.1	148	0.07			
.2	1461	27.3	2.4	115	4.1	196	0.07	0.8	38	16°
.1	1491	27.3	5.0	239	6.0	287	0.07			
8.	1631	24.7	3.0	144	6.0	287	0.05	1.5	72	15°
<b>D.</b> 3	1607	23.8	12.1	579	12.7	608	0.05			
<b>L</b> 5	1514	20.8	1.7	81	6.2	297	0.05	0.3	14	37.5°
1.7	1709	12.9	6.0	287	19.7	943	0.05	0.3	,	37.5



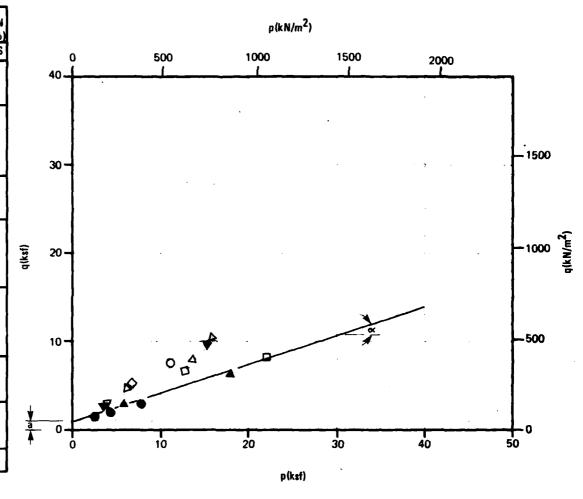
 $q = \frac{\Im 1 \cdot \Im 3}{2}$ 

 $\phi = \sin^{-1} (\tan \alpha)$ 

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L				
3	STRAIN		SION C)	FRICTION ANGLE (¢
52	(% min.)	ksf	kN/m²	DEGREES
	0.05	1.2	57	35°
2	0.05			
	0.05			
2 2 2 B	0.04	1.0	48	30°
D	0.05			
91	0.05	0.5	24	34°
22	0.05	0.5	24	
9	0.07	:		
3	0.07	1.3	62	15°
اعرا	0.07			
<b>9</b> 9	0.07			
9	0.07	8.0	38	16°
7	0.07			
37	0.05	1.5	72	15°
98	0.05			
<b>9</b> 7	0.05	0.3	14	37.5°
<b>1</b> 3	0.05	0.3		37.5



SUMMARY OF TRIAXIAL COMPRESSION TEST RESULTS OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION

FIGURE

`**II**-5-1

	_		-		_	_		_	_	_			_	_				-								_
	DIAMETER	2.40	2.09	2.09	2.09	2.09	2.40	2.40	2.09	2.40	2.40	2.09	2.09	2.40	2.40	2.09	2.10	2.00	2.10	2.10	2.10					
DEGREE OF Saturation	(\$)	45.2	73.4	88.9	90.1	101.5	9.03	65.1	78.0	99.0	34.8	818	89.4	77.4	49.3	94.7	80.9	52.6	57.7	60.3	49.7					!
MOISTURE	(\$)	6.7	22.0	32.1	22.8	35.0	7.8	14.2	19.2	34.7	8.2	19.3	12.6	17.6	10.4	22.4	15.6	15.9	12.9	13.7	13.2					
DRY DENSITY.	kg/m <sup>3</sup>	1837	1491	1367	1604	1371	1905	1700	1620	1386	1648	1650	1954	1671	1722	1648	1777	1488	1680	1674	1572					
DRY DE	pct	114.7	93.1	85.3	100.1	92.6	118.9	106.1	101.1	86.5	102.9	103.0	122.0	104.3	107.5	102.9	110.9	92.9	104.9	104.5	98.1					
IF I NED Trength	kN/m2	43	508	225	96	101	287	96	129	148	19	14	34	158	148	101	62	10	24	397	24					
UNCONFINED COMP. STRENGTH	ks (	6.0	10.6	4.7	2.0	2.1	6.0	2.0	2.7	3.1	0.4	0.3	0.7	3.3	3.1	2.1	1.3	0.2	0.5	8.3	0.5					
7108	TYPE	SM-SC	HW	ML	CL	ML	SC	SC	CL-ML	CL	SW-SM	SM	SM	CL	ML	CL	SP-SM	SM	SM	SM	SM					
HTERVAL	METERS	1.89 - 2.13	1.89 - 2.13	11.03 - 11.22	13.72 - 13.96	15.30 - 15.45	1.13 - 1.37	6.16 - 6.40	11.16-11.43	24,44 - 24.69	3.11 - 3.35	18.44 - 18.68	18.68 - 18,93	3.11 - 3.35	13.78 - 14.02	12.34 - 22.59	3.35 - 3.60	9.14 - 9.39	9.39 - 9.60	15.15 - 15.39	2.35 - 2.59					
SAMPLE INTERVAL	FEET	6.2 - 7.0	6.2 - 7.0	36.2 - 36.8	45.0 - 45.8	50.2 - 50.7	3.7 - 4.5	20.2 · 21.0	36.6 - 37.5	80.2 - 81.0	10.2 - 11.0	60.5 - 61.3	61.3 - 62.1	10.2 - 11.0	45.2 - 46.0	40.5 - 41.3	11.0 - 11.8	30.0 - 30.8	30.8 - 31.5	49.7 - 50.5	7.7 - 8.5					
SAMPLE	. NO.	D-4	p-4	P-12	P-14	P.15	D-2	9-Q	p.9	D-18	D-4	P.13	P-13	D-4	D-11	P-10	P-5	P-9	P.9	P-13	P-3					
BORING	NO.	MD-8-2	MD-8-3				MD-8-7	MD-B-9		MD-8-10	MD-8-12	MD-8-13		MD-B-14		MD-8-15	BL·B-7				BL-B-10					

SUMMARY OF UNCONFINED COMPRESSION TEST RESULTS OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - - - -

TABLE II-5-2

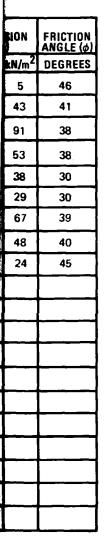
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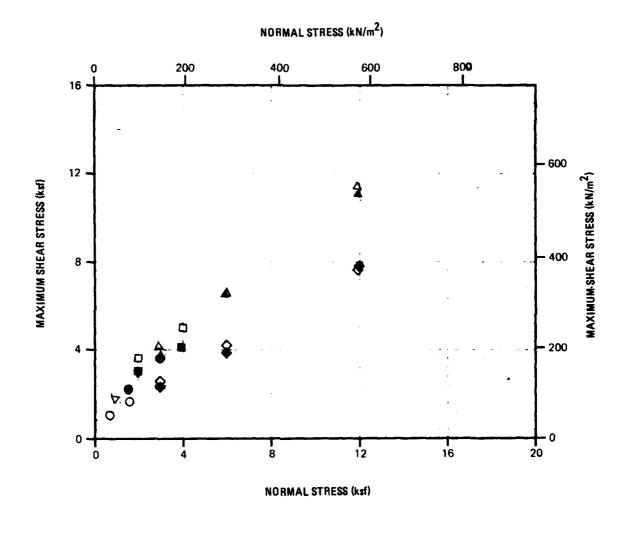
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SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE II	NTERVAL	SOIL		DRY D		MOISTURE CONTENT	COH	SION c)	FRICTION ANGLE (ø)
			FEET	METERS		TEST	pcf	kg/m <sup>3</sup>	(%)	ksf	kN/m <sup>2</sup>	DEGREES
•	MD B-1	D-9	15.2 - 16.0	4.6 - 4.9	SP-SM	CD	117.8	1887	9.5	0.1	5	46
•									21.8	0.9	43	41
ם	MD-B-1	D-14	37.2 - 38.0	11.3 - 11.6	SP-SM	CD	118.6	1900	8.9	1.9	91	38
									15.7	1,1	53	38
<b>\Q</b>	MD-B-3	P-16	60.0 - 61.5	18.3 - 18.7	SP-SM	CD	103.9	1665	21.1	0.8	38	30
•									24.0	0.6	29	30
Δ	MD-B-10	D-16	60.2 - 61.0	18.3 - 18.6	SP-SM	CD	106.8	1711	20.1	1.4	67	39
<b>A</b>					1				24.7	1.0	48	40
	BL-B-7	D-7	19.2 - 20.0	5.6 - 6.1	SP-SM	CD	114.4	1833	9.4	0.5	24	45
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O □ .♦ .∇ - Tested at natural moisture content

● , ■ ◆ · ▲ - Tested in soaked condition





SUMMARY OF DIRECT SHEAR TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION

DEPARTMENT OF THE AIR FORCE — BMO

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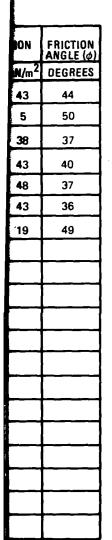
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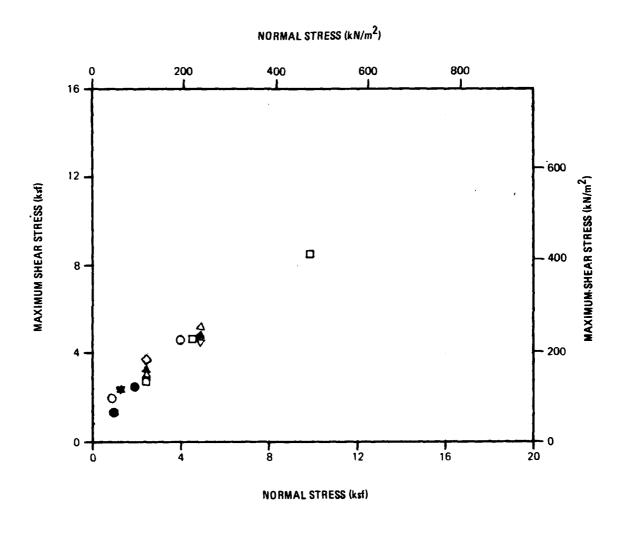
<u>ugro national, inc</u>

SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE	NTERVAL	SOIL TYPE	TYPE OF	ORY D	ENSITY	MOISTURE CONTENT		ESION c)	FRICTION ANGLE (φ)
			FEET	METERS	<u>L</u>	TEST	pcf	kg/m <sup>3</sup>	(%)	ksf	kN/m <sup>2</sup>	DEGREES
0	MD-B-1	D-11	22.2 · 23.0	6.8 - 7.0	ŞW- SM	CD	112.5	1802	6.4	0.9	43	44
									16.9	0.1	5	50
п.	MD-B-1	P-17	49.2 - 50.2	15.0 - 15.3	SW- SM	CD	103.0	1650	7.9	8.0	38	37
Δ	MD-B-2	D-8	25.2 - 26.0	7.7 - 7.9	SW- SM	CD	111.1	1780	8.4	0.9	43	40
<b>A</b>									17.9	1.0	48	37
∇	MD-B-10	D-10	25.2 · 26.0	7.7 - 7.9	SW. SM	CD	111.2	1781	10.1	0.9	43	36
<b>\Q</b>	MD-8-12	D-7	25.2 - 26.0	7.7 - 7.9	SW- SM	CD	112.2	1797	7.2	0.4	19	49
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O, □, △, ∇, ♦ Tested at natural moisture content

Tested in soaked condition



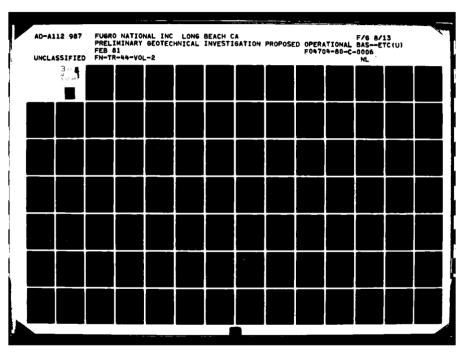


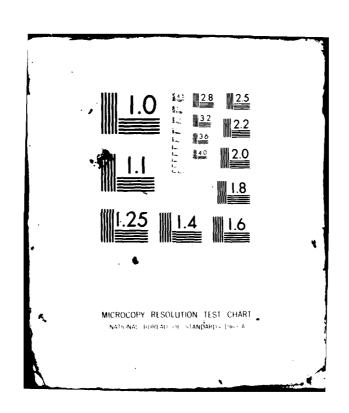
SUMMARY OF DIRECT SHEAR TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION

TI-5-2

UBRO NATIONAL, INC.

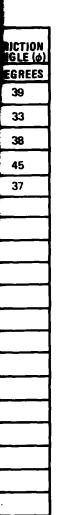


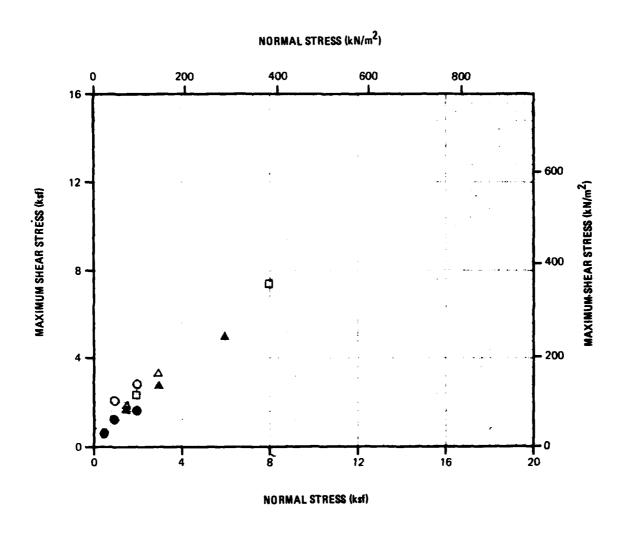


SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE I	NTERVAL	SOIL TYPE	TYPE OF	DRY D	ENSITY	MOISTURE CONTENT	СОН	ESION (c)	FRICTION ANGLE (ø)
			FEET	METERS		TEST	pcf	kg/m <sup>3</sup>	(%)	ksf	kN/m <sup>2</sup>	DEGREES
0	MD-B-2	D-3	3.7 - 4.5	1.1 - 1.4	SM	CD	116.3	1863	4.9	1.2	57	39
•									16.6	0.3	14	33
D	MD-B-2	D-11	40,2 - 41.0	12.3 - 12.5	SM	CD	112.8	1807	11.5	1.0	49	38
Δ	MD-B-3	P-11	29.7 - 30.5	9.1 - 9.3	SM	CD	98.7	1581	13.4	0.2	10	45
<b>A</b>			<del></del>						25.7	0.4	19	37
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O, D - A - Tested in natural moisture content

● / ▲ - Tested in soaked condition





SUMMARY OF DIRECT SHEAR TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE — BMO

FIGURE II-5-2

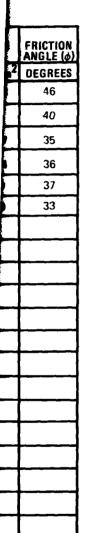
UBRO NATIONAL, INC

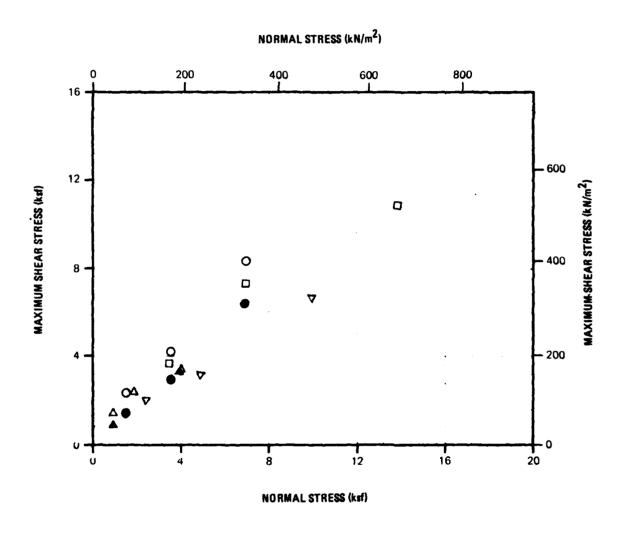
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SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE II	ITERVAL	SOIL TYPE	TYPE OF	DRY D		MOISTURE CONTENT		c)	FRICTION ANGLE (ø)
			FEET	METERS		TEST	pcf	kg/m <sup>3</sup>	(%)	ksf	kN/m <sup>2</sup>	DEGREES
0	MD-B-4	D-9	35 2 - 36.0	10.7 11.0	SM	CD	1129	1809	5.2	8.0	38	46
•									17.0	0.1	5	40
۵	MD-B-4	D-14	70.2 - 71.0	21.4 - 21.6	SM	CD	110.5	1770	9.6	1.4	67	35
Δ	MD-B-9	P-4	10.0 - 11.0	3.0 - 3.4	SM	CD	101.1	1620	11.4	0.5	24	36
<b>A</b>									26.2	0.0	0	37
▽	MD-B-9	P 12	51.6 - 52.5	15.7 - 16.0	SM	CD	102.8	1647	22.5	0.2	10	33
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O, □ · △ · ▽ - Tested at natural moisture content

● , ▲ - Tested in soaked condition





SUMMARY OF DIRECT SHEAR TEST RESULTS

OPERATIONAL BASE SITE

MILFORD, UTAH

MX SITING INVESTIGATION

II-5-2

DEPARTMENT OF THE AIR FORCE - BMO

GRO NATIONAL, INC.

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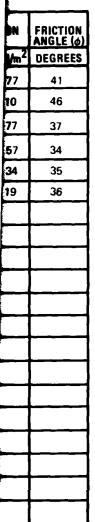
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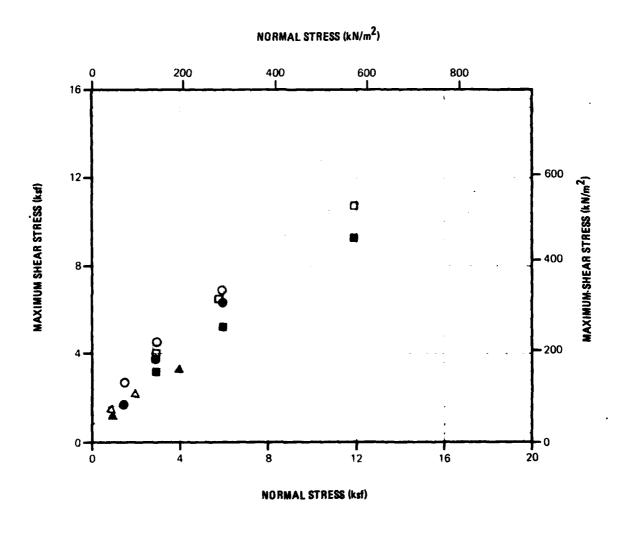
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SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE I	NTERVAL	SOIL TYPE	TYPE OF	DRY D	ENSITY	MOISTURE CONTENT	СОН	ESION (c)	FRICTION ANGLE (6)
			FEET	METERS		TEST	pcf	kg/m <sup>3</sup>	(%)	ksf	kN/m <sup>2</sup>	DEGREES
0	MD-B-4	P-5	15.1 17.0	4.6 - 5.2	ML	CD	109.1	1748	7.5	1.6	77	41_
•									22.4	0.2	10	46
	MD B-1	D-13	60.2 - 61.ú	18.3 - 18.6	ML	CD	104.8	1679	12.1	1.6	77	37
			_						20.8	1.2	57	34
Δ	MD B-6	P-9	21.0 - 21.7	6.4 - 6.6	ML	CD	104.2	1669	18.1	0.7	34	35
A									22.4	0.4	19	36
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O, D,  $\triangle$  -Tested at natural moisture content

●, ■, ▲ ~ Tested in soaked condition





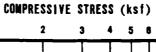
SUMMARY OF DIRECT SHEAR TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

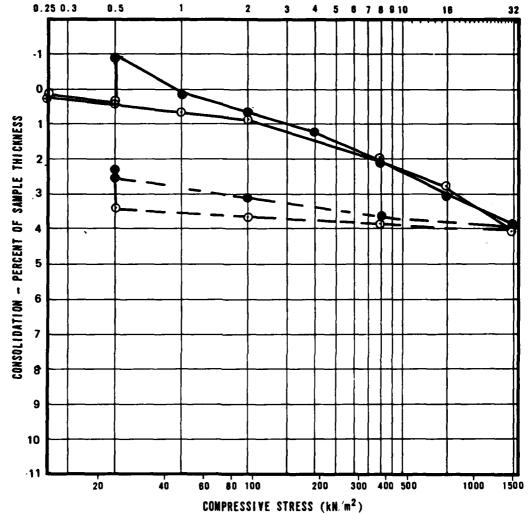
MX SITING INVESTIGATION

FIGURE II-5-2 5 of 5

UGRO NATIONAL, INC.

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SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE	INTERVAL	SOIL	INI DRY D	TIAL ENSITY	INITIAL MOISTURE COÑTENT	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION
[	<b>S</b>		FEET	METERS		pcf	kg/m3	(%)	RALIU	(%)
0,•	MD-B-3	P-7	10.5 - 11.1	3.20 - 3.38	СН	114.7	1837	10.6	0.47	60.9
⊕, ●	MD-B-3	P-7	10.5 - 11.1	3.20 - 3.38	СН	115.8	1855	10.4	0.45	65.4
				•	<b>†</b>					

AT FIELD MOISTURE

AFTER ADDITION OF WATER

COMPRESSION

REBOUND

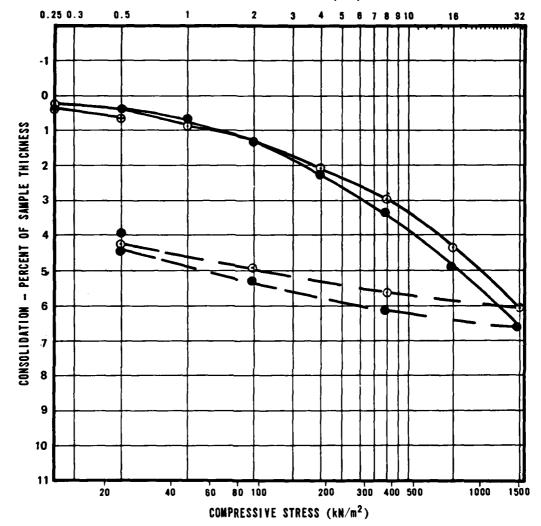
**CONSOLIDATION TEST RESULTS OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG FIGURE II-5-3 1 OF 10

UGRO NATIONAL INC.

USAF-09





	SYMBOL	BORING No.	SAMPLE No.	SAMPLE	INTERVAL	SOIL TYPE		TIAL Ensity	INITIAL MOISTURE CONTENT	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION
				FEET	METERS		pcf	kg/m³	(%)	NATIO	(%)
I	0, •	MD-B-3	P-12	36.2 - 36.8	11.03 - 11.22	ML	102.5	1642	22.9	0.64	96.6
I	●,●	MD-B-3	P-12	36.2 - 36.8	11.03 - 11.22	ML	104.7	1677	21.7	0.62	97.2
ĺ											

⊕, O AT FIELD MOISTURE

AFTER ADDITION OF WATER

\_\_\_ COMPRESSION

\_ \_ \_ REBOUND

CONSOLIDATION TEST RESULTS OPERATIONAL BASE SITE MILFORD, UTAH

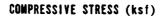
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMG

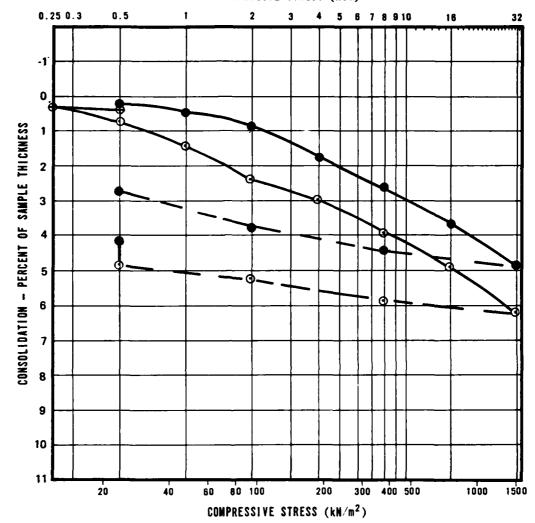
II-5-3 2 OF 10

UGRO NATIONAL, INC.

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USAF-09





SYMBOL	BORING No.	SAMPLE No.	SAMPLE	INTERVAL	SOIL		TIAL Ensity	INITIAL MOISTURE CONTENT	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION
			FEET	METERS	1	pcf	kg/m³	(%)	NALIU	(%)
0, ●	MD-8-9	P-3	6.0 - 6.6	1.83 - 2.01	ML	111.4	1785	17.1	0.51	90.5
⊕, ●	MD-B-9	P-3	6.0 - 6.6	1.83 - 2.01	ML	111.7	1789	16.1	0.51	87.3

⊕.O AT FIELD MOISTURE

AFTER ADDITION OF WATER

\_\_\_ COMPRESSION

- - REBOUND

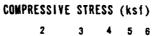
CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

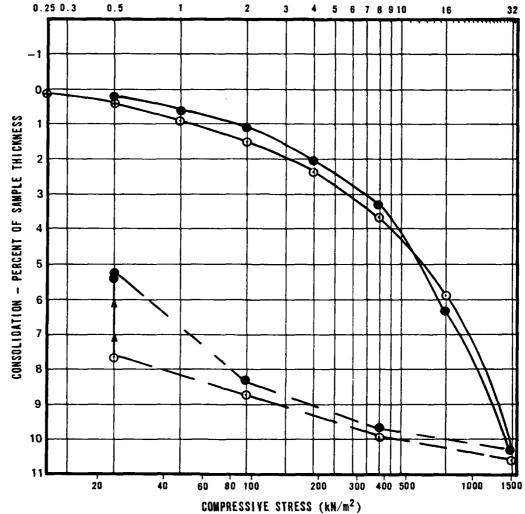
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TI-5-3 3 OF 10

TUGRO NATIONAL, INC.

USAF-09





SYMBOL	BORING No.			SOIL			INITIAL INITIAL WOISTURE YOLD CONTENT RATIO		INITIAL DEGREE OF SATURATION	
			FEET	METERS	]	pcf	kg/m <sup>3</sup>	(%)	RALIU	(%)
0,●	MD-B-9	P-8	31.0 - 31.6	9.45 - 9.63	СН	91.4	1464	30.2	0.84	97. 1
⊕, ●	MD-B-9	P-8	31.0 - 31.6	9.45 - 9.63	СН	90.1	1443	31.5	0.87	96.8

⊕, ○ AT FIELD MOISTURE

AFTER ADDITION OF WATER

\_\_\_\_\_ COMPRESSION

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CONSOLIDATION TEST RESULTS OPERATIONAL BASE SITE MILFORD, UTA:1

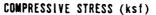
MX SITING INVESTIGATION

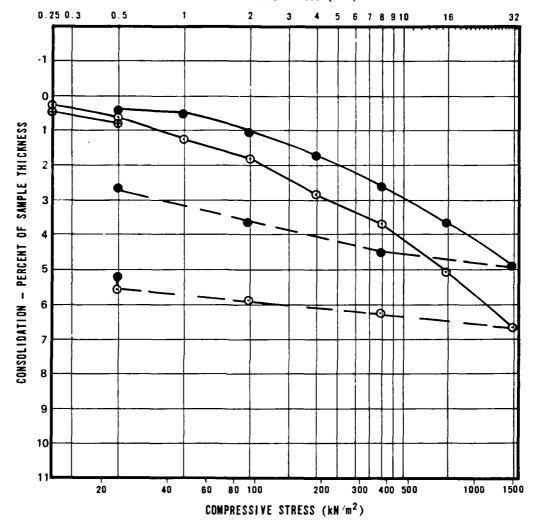
DEPARTMENT OF THE AIR FORCE - SMG

FIGURE II-5-3 4 OF 10

UGRO NATIONAL, INC.

USAF-09





SYMBOL	BORING No.	SAMPLE No.	SAMPLE	INTERVAL	SOIL TYPE		TIAL Ensity	INITIAL MOISTURE CONTENT	INITIAL VOID RATIO	INITIAL DEGREE OF SATURATION
			FEET	METERS		pcf	kg/m <sup>3</sup>	(%)	KKIIU	(%)
0,●	MD-B-10	P-12	35.5 - 35.7	10.82 - 10.88	SC	112.8	1807	13.6	0.49	74.9
⊕, ●	MD-8-10	P-12	35.5 - 35.7	10.82 - 10.88	SC	115.0	1842	14.3	0.47	90.1

AT FIELD MOISTURE

AFTER ADDITION OF WATER

COMPRESSION

\_ REBOUND

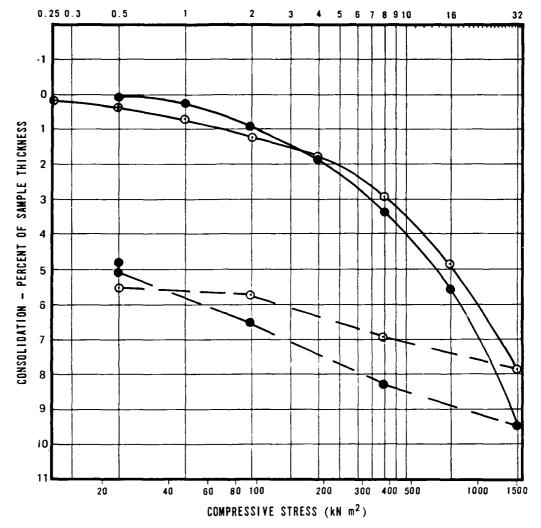
**CONSOLIDATION TEST RESULTS OPERATIONAL BASE SITE** MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG FIGURE **II**-5-3 5 OF 10

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USAF-09





SYMBOL	BORING No.	SAMPLE No.	SAMPLE	INTERVAL	SOIL TYPE		TIAL Ensity	INITIAL MOISTURE CONTENT		INITIAL DEGREE OF SATURATION
			FEET	METERS		pcf	kg m <sup>3</sup>	(°,	RATIO	(%)
0,●	MD-B-10	P-17	70.8 - 71.4	21.58 - 21.76	CL	99.4	1592	26.4	0.69	103.3
⊕, ●	MD-B-10	P-17	70.8 - 71.4	21.58 - 21.76	CL	96.9	1552	28.3	0.71	96.2
							]			

⊕,O AT FIELD MOISTURE

AFTER ADDITION OF WATER

\_\_\_\_ COMPRESSION

- - REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

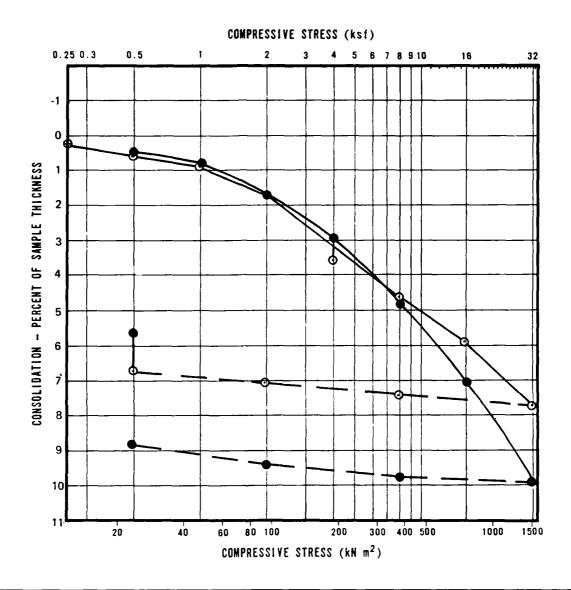
WX SITING INVESTIGATION DEPARTMENT OF THE AIR FURCE. BMO

TI-5-3 6 OF 10

UGRO NATIONAL, INC.

20 FEB 81

USAF-09



SYMBOL	BORING NO.	SAMPLE No.	SAMPLE	INTERVAL	SOIL TYPE	INI Dry Di		INITIAL MOISTURE CONTENT		INITIAL DEGREE OF SATURATION
		[	FEET	METERS		pcf	kg m <sup>3</sup>	(%)		(%)
0, •	MD-8-13	P-10	40.2 - 40.8	12.25 - 12.44	SM	118.7	1902	11.3	0.42	88.7
⊕, ●	MD-B-13	P-10	40.2 - 40.8	12.25 - 12.44	SM	111.9	1792	9.8	0.47	61.9

⊕, ○ AT FIELD MOISTURE

AFTER ADDITION OF WATER

\_\_\_\_ COMPRESSION

\_ \_ REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

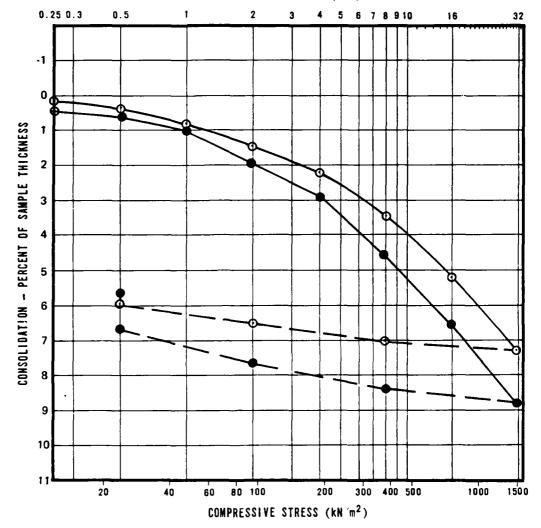
11-5-3 7 OF 10

UGRO NATIONAL, INC.

20 FEB 81

USAF-09





SYMBOL	BORING NO.	SAMPLE No.	SAMPLE	INTERVAL	SOIL		INITIAL INITIAL INITIAL POID CONTENT RATIO		INITIAL DEGREE OF SATURATION	
			FEET	METERS	1	pcf	kg m <sup>3</sup>	(%)	RAIIU	(%)
0, ●	MD-B-15	P-7	26.0 - 26.5	7.92 - 8.08	ML	97.2	1557	24.8	0.73	91.7
⊕, ●	MD-B-15	P-7	26.0 - 26.5	7.92 - 8.08	ML	97.5	1562	27.9	0.73	95.4

⊕, O AT FIELD MOISTURE

AFTER ADDITION OF WATER

\_\_\_\_ COMPRESSION

\_ \_ \_ REBOUND

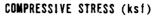
CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

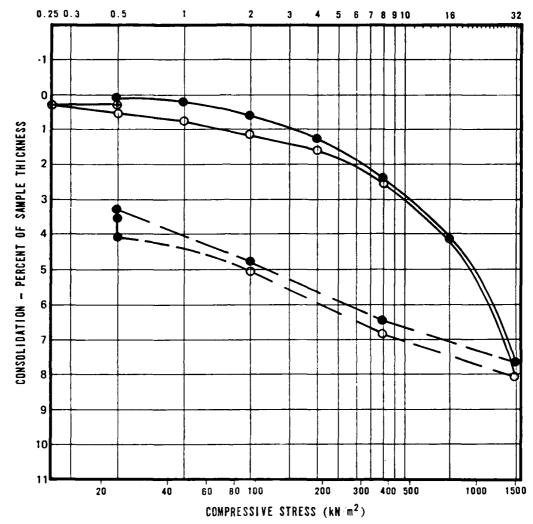
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMD

FIGURE II-5-3 8 OF 10

UGRO NATIONAL, INC.

USAF-09





SYMBOL	BORING NO.	SAMPLE No.	SAMPLE	INTERVAL	SOIL TYPE				INITIAL DEGREE OF SATURATION	
			FEET	METERS		pcf	kg m <sup>3</sup>	(%)	RATIO	(%)
0, ●	MD- <b>B</b> -15	P-16	90.6 - 90.7	27.61 - 27.65	CL	99.6	1596	26.3	0.69	102.9
⊕, ●	MD-B-15	P-16	90.6 - 90.7	27.61 - 27.65	CL	102.4	1640	24.1	0.65	96.3

⊕, O AT. FIELD MOISTURE

AFTER ADDITION OF WATER

\_\_ COMPRESSION

\_ \_ REBOUND

CONSOLIDATION TEST RESULTS OPERATIONAL BASE SITE MILFORD, UTAH

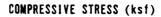
MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE BMO

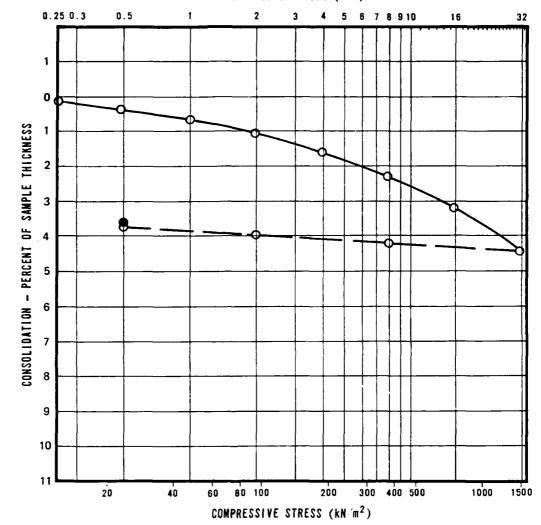
II-5-3 9 OF 10

UGRO NATIONAL, INC.

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USAF-09





SYMBOL	BORING NO.	SAMPLE NO.	SAMPLE	INTERVAL	SOIL		INITIAL DRY DENSITY					INITIAL DEGREE OF SATURATION
			FEET	METERS		pcf	kg. m <sup>3</sup>	(%)	RATIO	(%)		
0,●	BL-3-7	P-10	36. <b>3</b> - 36.5	11.06 - 11.15	CL	111.1	1780	11.3	0.52	58.7		
		<b>  </b>			<b> </b>	-		<del> </del> -				

O AT FIELD MOISTURE

AFTER ADDITION OF WATER

\_\_\_\_\_ COMPRESSION

-- - REBOUND

CONSOLIDATION TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE BMO

FIGURE 10 5 - 3

<u>ugro national, inc.</u>

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							<b>F</b>	WATER SOLUBLE	E	CALCIUM
ACTIVITY	SAMPLE	SAMPLE INIEKTAL	MICKARL	301L 17PF	돐	SODIUM	CHLORIDE	SULPHATE	CALCIUM	CARBONATE
		FEET	METERS			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MD-8-1	D-2	1.7 - 2.5	0.52 - 0.76	WS	8.5	231	344	48	9/	337
	D-11	22.2 - 23.0	6.77 - 7.01	WS-MS	8.3	89	247.	42	65	410
MD-8-2	<b>3</b> -0	10.2 - 11.0	3.11 - 3.35	SM	9.0	984	470	188	30	191
MD-8-3	p.7	10.5 - 11.1	3.20 - 3.38	ᆼ	7.9	4365	0999	714	907	4240
MD-8-4	D-14	70.2 - 71.0	21.40 - 21.64	SM	9.1	268	55	37	75	319
MD-B-6	D-2	1.7 - 2.5	0.52 - 0.76	SM	8.9	111	40	9	89	272
MD-8-7	D-4	10.2 - 11.0	3.11 - 3.35	ďЭ	9.7	495	177	117	35	183
MD-B-8	9-Q	20.2 - 21.0	6.16 - 6.40	SP-SM	8.2	443	520	875	169	874
MD-B-9	P-12	50.0 - 52.5	15.24 - 16.00	SM	8.9	100	99	49	133	370
	P.14	69.0 - 71.5	21.03 - 21.79	ᆼ	8.8	175	26	75	92	341
MD-8-11	D-5	15.2 - 16.0	4.63 - 4.88	Sb	9.8	178	146	206	86	326
MD-8-12	D-3	6.7 - 7.5	2.04 - 2.29	SM	8.6	732	488	133	73	259
MD-8-13	D-5	15.2 - 16.0	4.63 - 4.88	Sb	9.0	807	357	62	39	167
MD-8-15	P-12	50.0 - 51.0	15.24 - 15.54	CL	8.3	5010	2750	1395	112	664
BL-B-7	D-7	19.1 - 19.9	5.82 - 6.07	SP-SM	8.4	193	291	1440	95	368
BL-B-10	D-9	35.2 - 36.0	10.73 - 10.97	SM	9.8	96	92	37	48	261
BL-T-10	p-2	4.0 - 5.0	1.22 - 1.52	GP-GM	9.0	32	26	48	65	289
BL-T-17	B-1	0.5 - 2.0	0.15 - 0.61	CL	8.2	1780	261	157	2420	7175

SUMMARY OF CHEMICAL TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

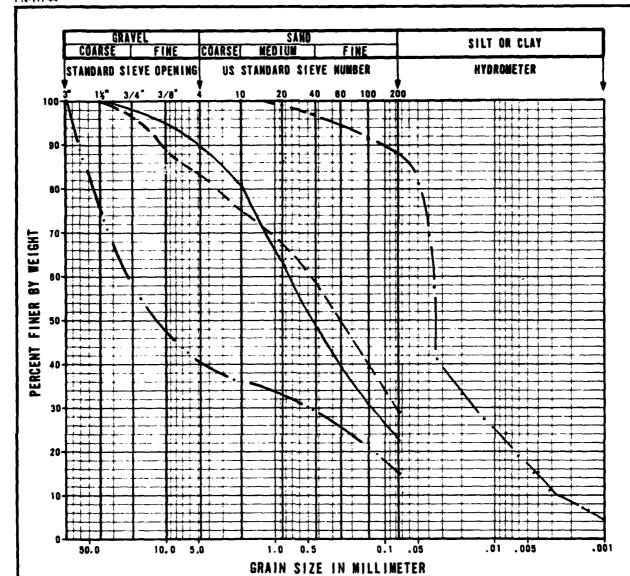
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DEPARTMENT OF THE AIR FORCE - BMG

TABLE II-5-3

UBRO NATIONAL INC.

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SYMBOL	COMPOSITE	ACTIVITY	SAMPLE	2017	
21 MDUL	SAMPLE Number	NUMBER	FEET	METERS	TYPE
	Α	MD-T-5	0.5 - 2.0	0.15 - 0.61	SM
	В	MD-T-6	0.5 - 2.0	0.15 - 0.61	SM
	С	MD·T·9	0.5 - 2.0	0.15 - 0.61	мн
	D	MD·T·12	0.5 · 2.0	0.15 - 0.61	GC

GRAIN SIZE CURVES, CBR TESTS OPERATIONAL BASE SITE MILFORD, UTAH

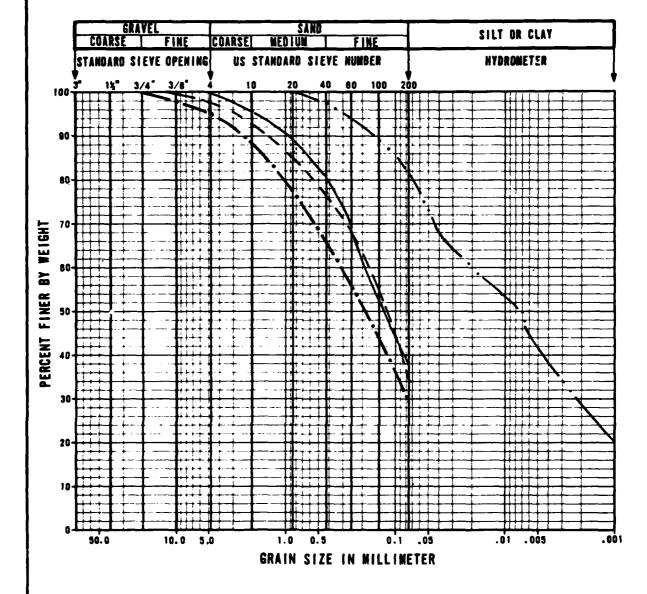
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMG

I-5-4 1 OF 3

UGRO NATIONAL, INC.

USAF-10

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SYMBOL	COMPOSITE SAMPLE	ACTIVITY	SAMPLE	SOIL	
	NUMBER	NUMBER	FEET	METERS	TYPE
	E	MD-T-14	0.5 - 2.0	0,15 - 0.61	sc
	F	MD-T-15	0.5 - 2.0	0.15 - 0.61	SM
	G	MD-T-17	0.5 - 2.0	0.15 - 0.61	sc
	Н	MD-P-1	0.5 - 2.0	0.15 - 0.61	СН

GRAIN SIZE CURVES, CBR TESTS OPERATIONAL BASE SITE MILFORD, UTAH

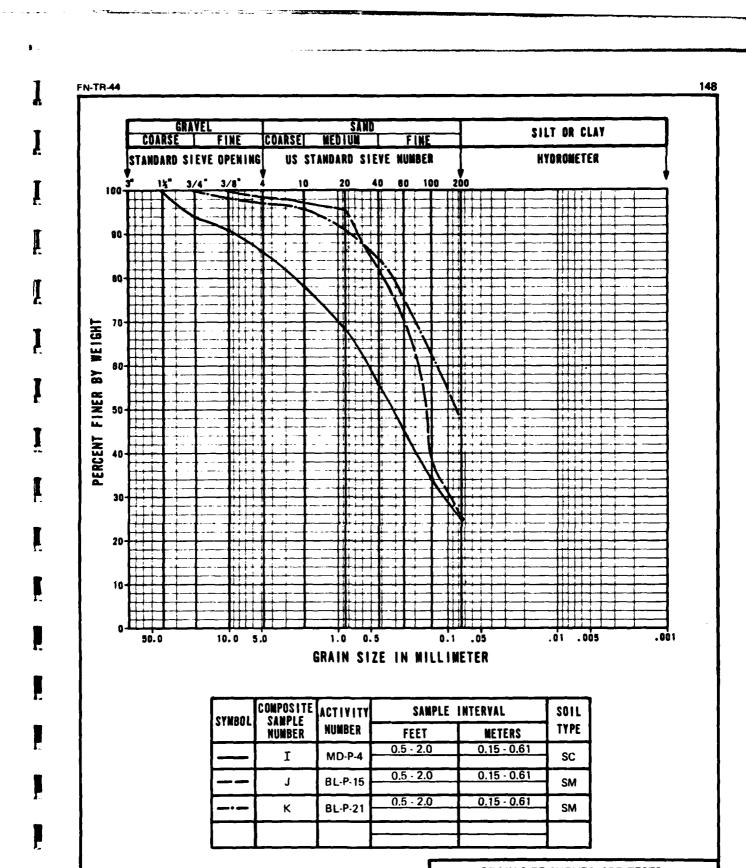
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

FIGURE ∏-5-4 2 OF 3

<u>UBRO NATIONAL, INC.</u>

USAF-10

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GRAIN-SIZE CURVES, CBR TESTS OPERATIONAL BASE SITE MILFORD, UTAH

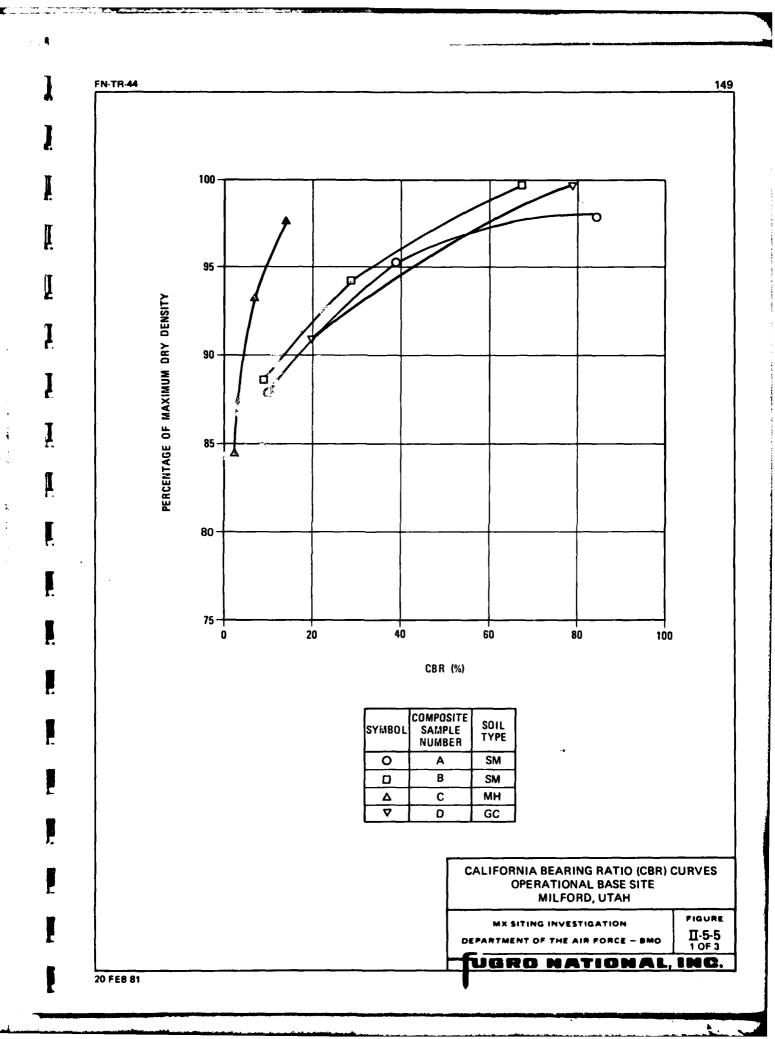
MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 8M0

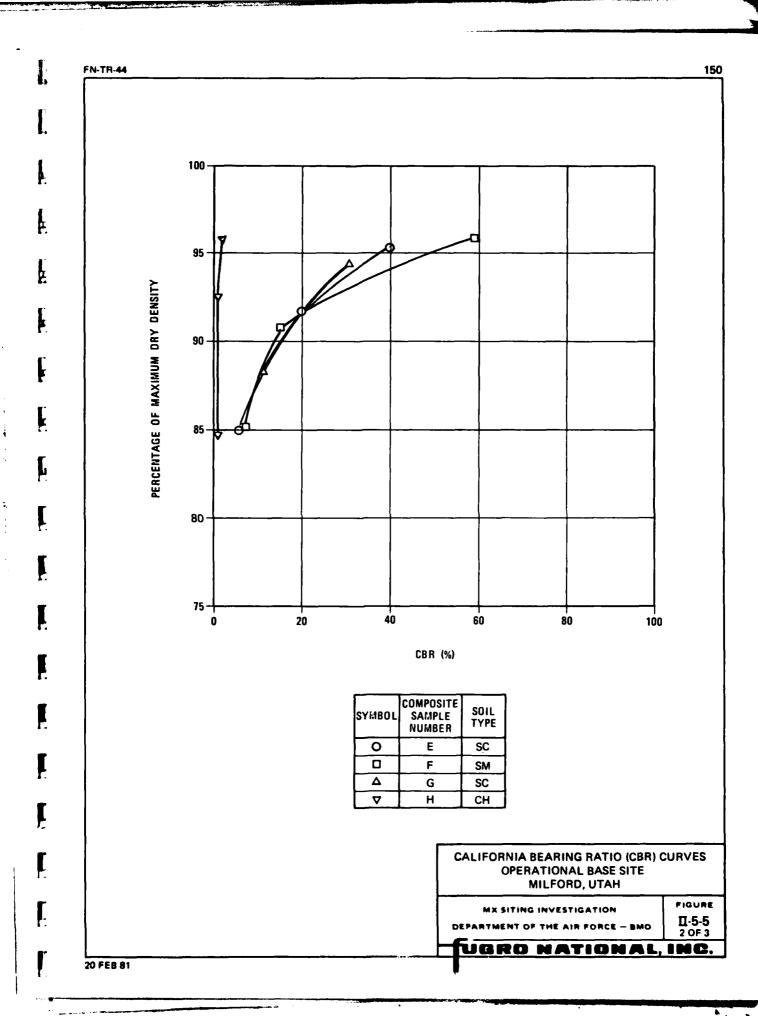
FIGURE ☐-5-4 3 OF 3

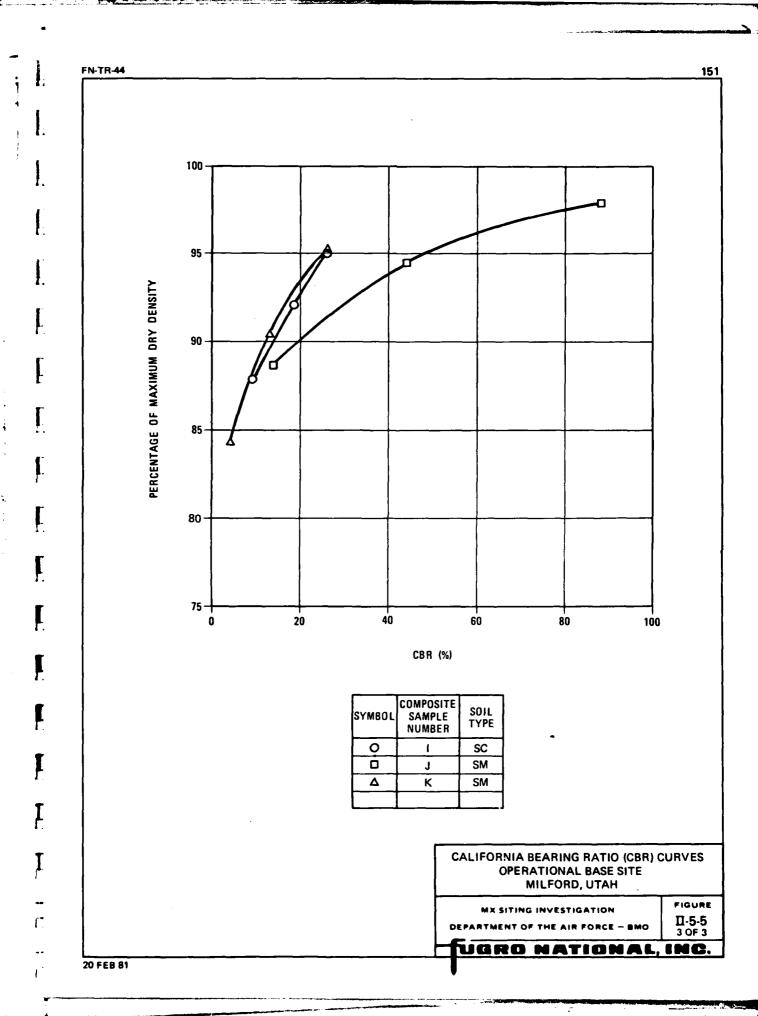
<u>ugro national inc</u>

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USAF-10







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85	(\$)	84	<b>6</b> E	10		<b>29</b>	62	6		14	L	ε		79	20		
PERCENT OF	DRY DENSITY	98.2	95.2	88.3		98.6	94.2	88.6		97.5	93.2	84.5		8.66	6.06		
COMPACTED	(\$)	11.4	10.2	10.9		11.1	11.2	12.2		51.1	51.0	51.1		6.2	6.7		
COMPACTED DRY DENSITY	kg/m³	1966	1906	1769		1994	1887	1773		1080	1032	940		2190	1996		
		122.7	119.0	110.4		124.5	117.8	110.7		67.4	64.4	58.7		136.7	124.6		
OPT INUM Moisture	(%)			10.7				11.0				49.8			7.0		
MAXINUM DRY DENSITY	kg/m3			2003				2003				1107			2195		
MAX DRY DI	pc f			125.0				125.0				69.1			137.0		
SPECIFIC	GKAVIIY																
ATTERBERG LIMITS	Ы							ğ				21					
ATTE	11											20					
PERCENT	#200			22				53				88			15		
	-			NS WS				SM				ĭ			၁၅		
COMPOSITE Sample	NUMBER			∢				80				ပ			۵		

CALIFORNIA BEARING RATIO (CBR)
TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE 1-5-4 1 OF 3

**UBRO NATIONAL, INC.** 

USAF -08

		_	_	_	_							_	_		_		_		<del></del> -		
CB.	(3)	40	20	9			69	15	4			31	11				7	1	ı		
PERCENT OF MAXIMUM	DRY DENSITY	95.2	91.6	85.0			95.9	90.7	85.1			94.4	88.3				95.7	92.5	84.7		
COMPACTED	(%)	15.9	15.5	15.5			10.8	9.7	10.6			17.1	17.2				22.5	22.5	22.4		
ICTED Ensity	kg/m3	1769	1701	1580			1950	1844	1730			1693	1584				1564	1511	1384		
COMPACTED DRY DENSITY	pcf	110.4	106.2	98.6			121.7	115.1	108.0			105.7	98.9				9.76	94.3	86.4		
OPT INUN MOISTURE	(%)	15.5				10.2					17.2				23.0						
MAXIMUM DRY DENSITY	kg/m3			1858			2033					1794					1634				
MAX DRY DE	pcf			116.0			126.9					112.0							102.0		
SPECIFIC	GKAY117																				
ATTERBERG LIMITS	Ы	_		=									81						32		
	11			28								39					61				
PERCENT PASSING	#200	88			34						30						82				
SOIL		SC			SM						သွ						ᆼ				
COMPOSITE	NUMBER	ш			u.						9						Ξ				

CALIFORNIA BEARING RATIO (CBR)
TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 9M0

146LE 11-5-4 2 OF 3

<u>ubro national, inc</u>

USAF -08

	-,					_			_	_	_	_	_	_	_		 _	_	
CBR	( <u>*</u> )	56	19	10		87	43	14			56	13	4						
PERCENT OF MAXIMUM	DRY DENSITY	95.0	92.0	88.0		97.8	94.6	88.6			95.3	90.4	84.2						
COMPACTED	(%)	11.7	11.3	11.0		11.1	11.1	11.1			11.6	11.9	12.3						
CTED	kg/m³	1865	1805	1727		1958	1895	1773			1871	1775	1653						
COMPACTED DRY DENSITY	pcf	116.4	112.7	107.8		122.2	118.3	110.7			116.8	110.8	103.2						
OPT IMUM MOISTURE	(%)			11.1				10.9					11.5						
MAXIMUM DRY DENSITY	kg/m3			1962		2003				1962									
MAX DRY DE	pc f			122.5		125.0				122.5									
SPECIFIC	GKATIIT																		
ATTERBERG LIMITS	PI			14															
ATTE	11			36															
PERCENT	#200	25			25				48										
SOIL		SC			S					SM									
COMPOSITE	NUMBER			н		7					¥								

CALIFORNIA BEARING RATIO (CBR)
TEST RESULTS
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - BMO

TABLE 11-5-4 3 OF 3

**UGRO NATIONAL, INC** 

USAF -08

SECTION 6.0

EXPLANATION OF CONE PENETROMETER TEST RESULTS

SECTION 1.0

ACTIVITY LOCATION MAP

(IN POCKET)

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## 6.0 EXPLANATION OF CONE PENETROMETER TEST RESULTS

The results of all cone penetrometer tests are presented in this section. Explanations of the test results are as follows:

- A. Friction Resistance The resistance to penetration developed by the friction sleeve, equal to the vertical force applied to the sleeve divided by its surface area. This resistance is the sum of friction and adhesion.
- B. Cone Resistance The resistance to penetration developed by the cone, equal to the vertical force applied to the cone, divided by its horizontally projected area.
- C. Friction Ratio The ratio of friction resistance to cone resistance.
- D. Designation Each cone penetrometer test is identified by a number: for example MD-C-1 or BL-C-1.

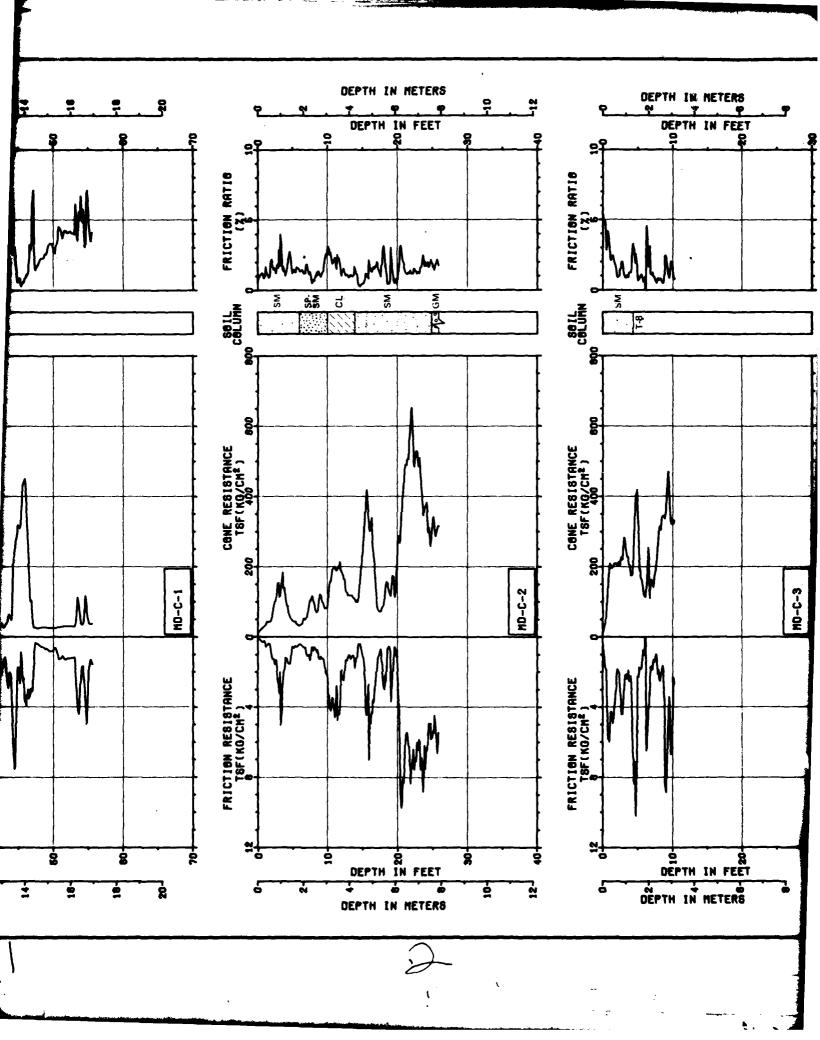
  - C abbreviation for the CPT
  - 1 number of the test

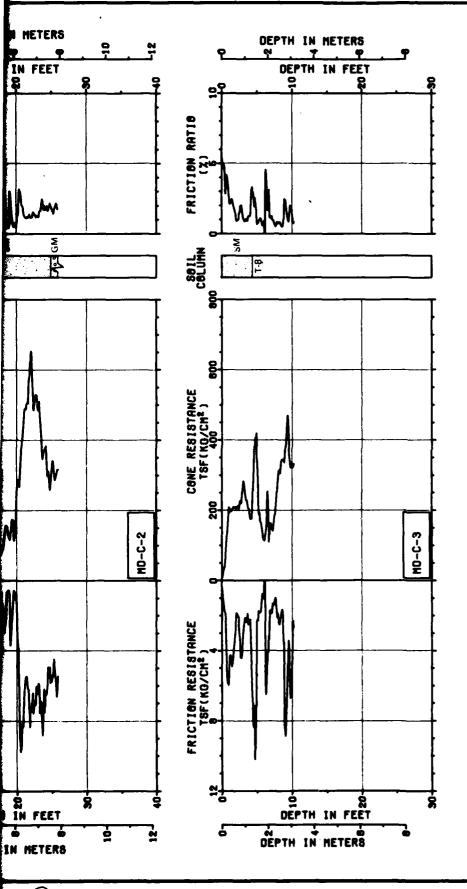
All of the engineering activities for Option 1 OBTS are designated by BL (e.g., Beryl).

E. Soil Column - A graphical presentation of the soil type versus depth at each cone penetrometer test location where either a boring, trench, or test pit was performed. The Unified Soil Classification Symbol for each different soil type is listed immediately to the right of the soil column.

TUGRO HATIONAL MG

Immediately below the soil column, the activity number for the corresponding boring, trench, or test pit at each CPT location is given.





CONE PENETROMETER TEST MD-C-1, 2 & 3
OPERATIONAL BASE SITE
MILIPORD, UTAM

MX SITING INVESTIGATION

FIGURE II-6-1

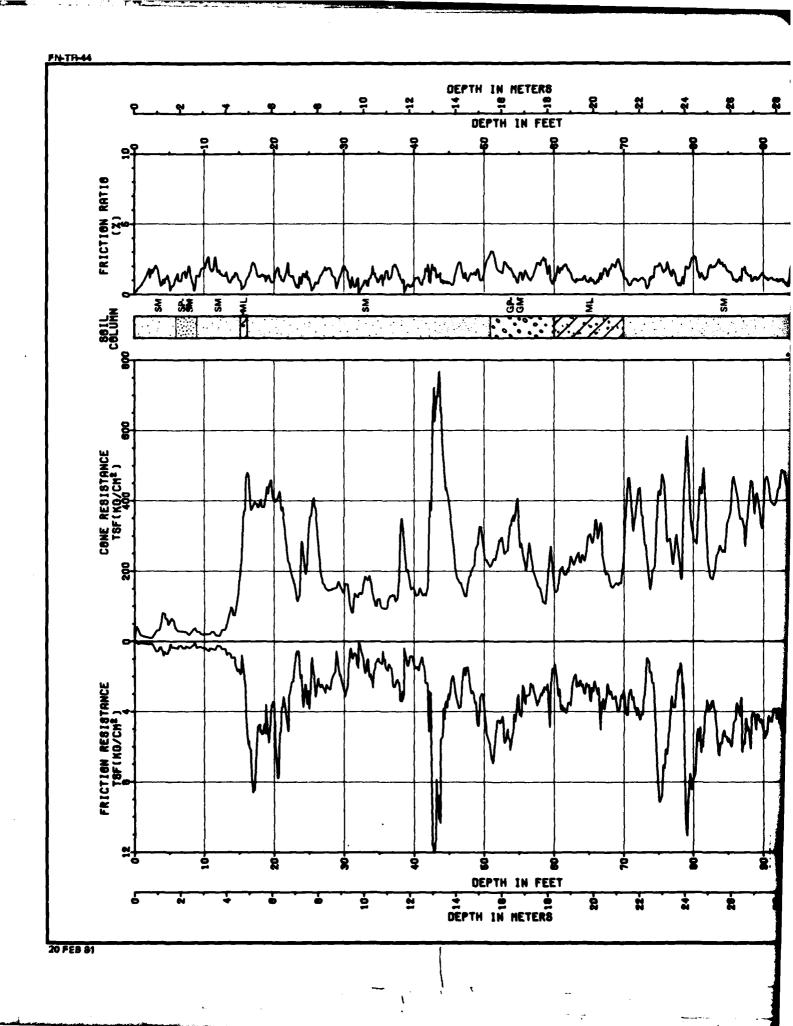
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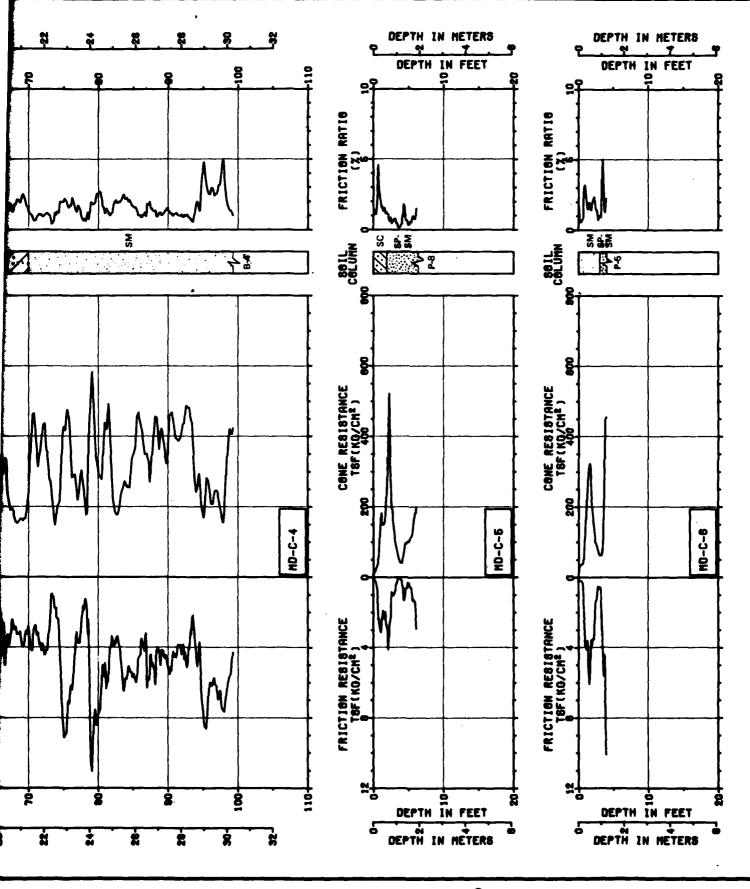
11-6-1 1 OF 26

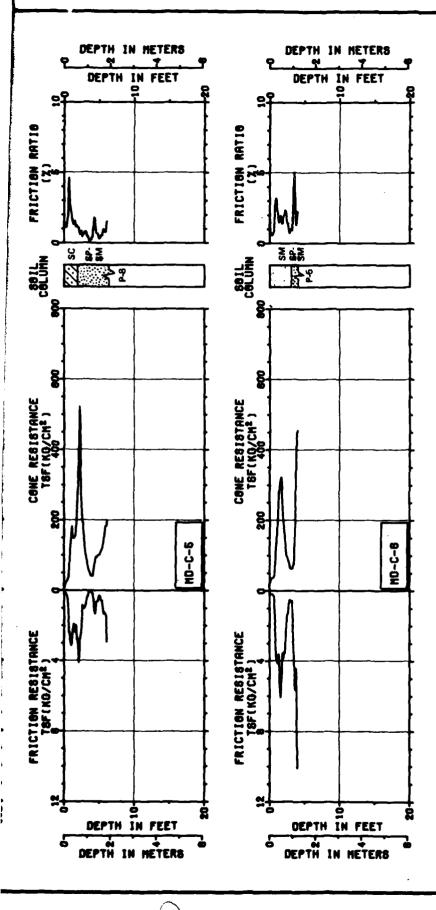
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CONE PENETROMETER TEST MD-C-4, 5 & 6 OFFICE BOME, BASE SITE MILITARE, WT/M

MX SITING INVESTIGATION

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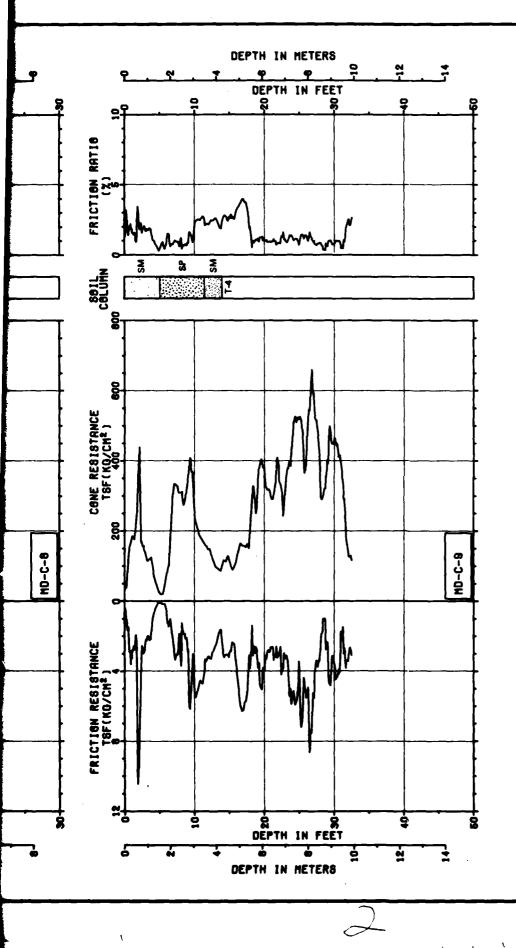
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DEPTH IN HETERS

FRICTION RESISTANCE
TO DESTANCE
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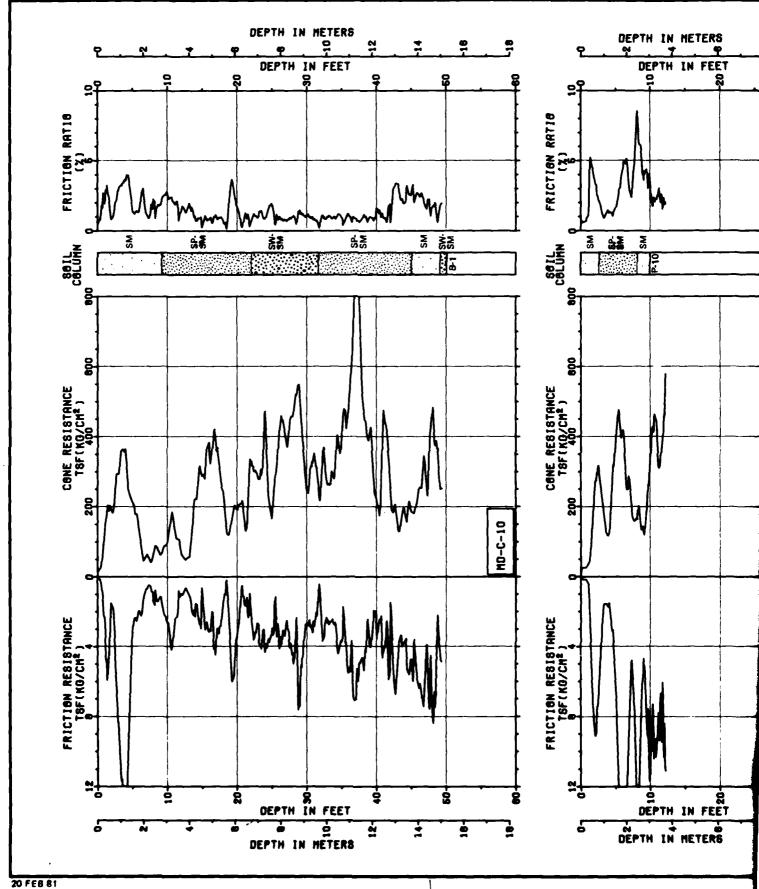
CONE PENETROMETER TEST MO-C-7, 8 & 9 OPERATIONAL BASE SITE MILBORD, USBAM

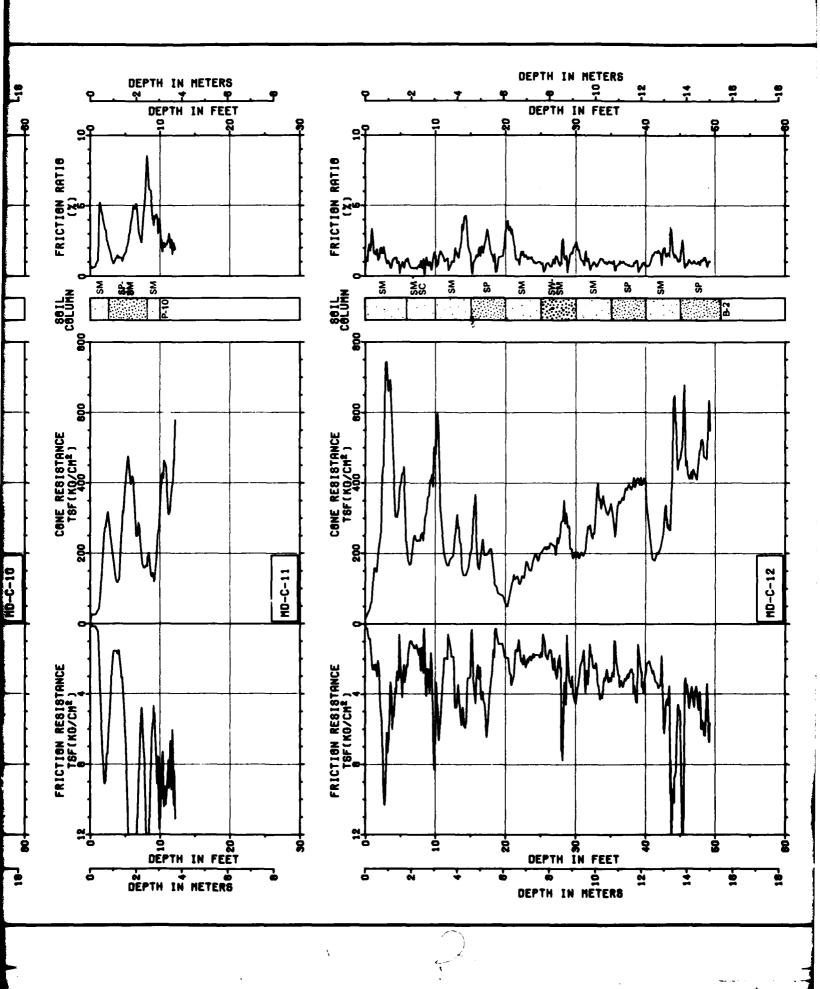
MX SITING INVESTIGATION

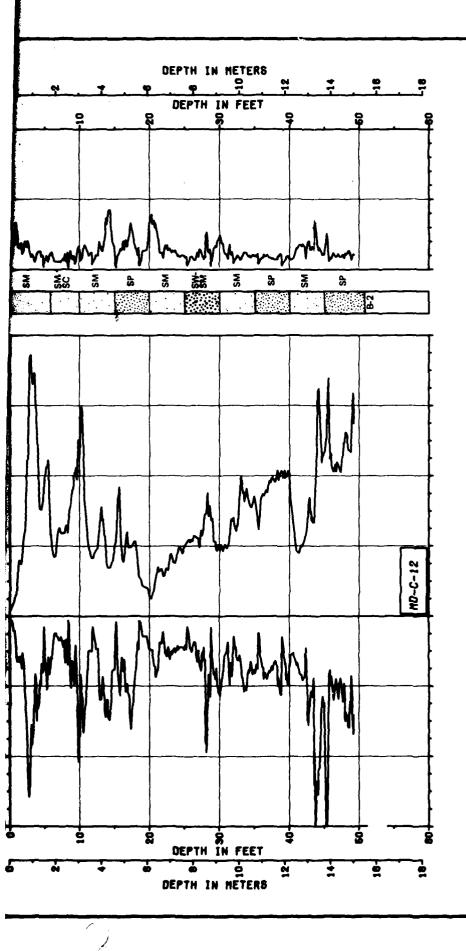
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CONE PENETROMETER TEST MD-C-10, 11 & 12 OPERATIONAL BASE SITE MB-PORB, UTAH

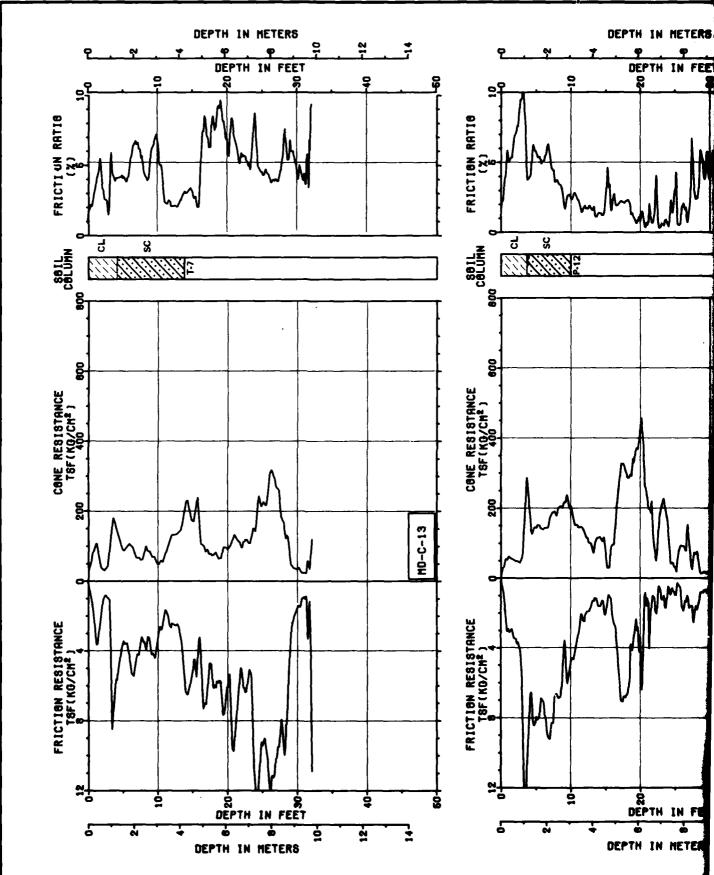
MX SITING INVESTIGATION

FIGURE

DEPARTMENT OF THE AIR FORCE - BMO

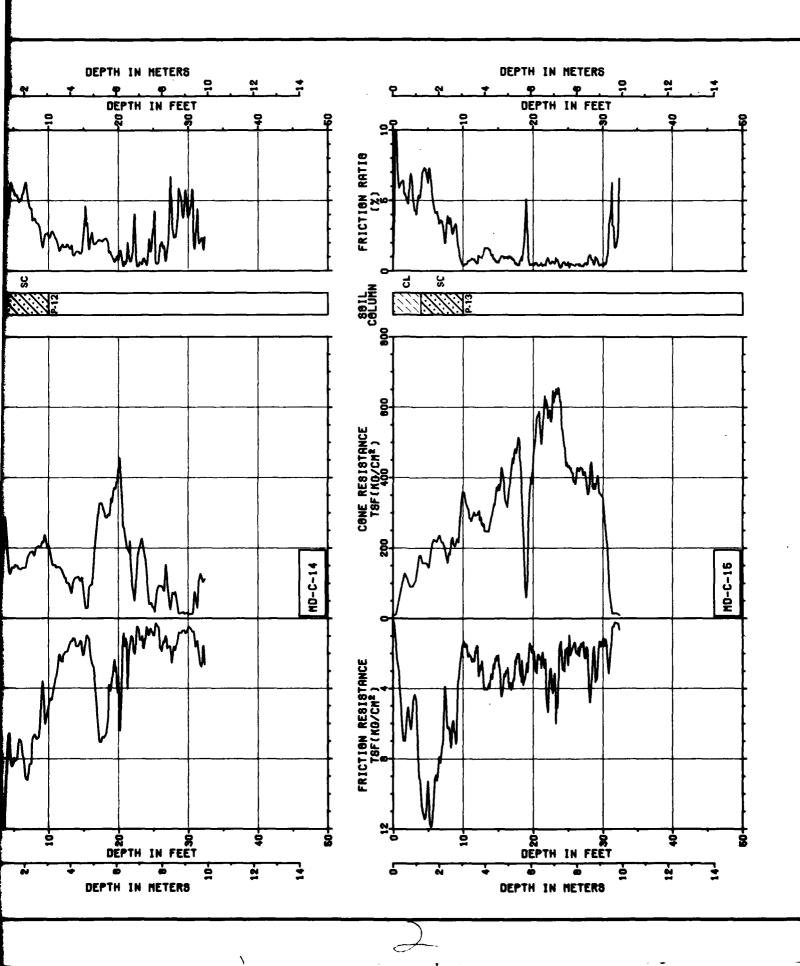
II-6-1

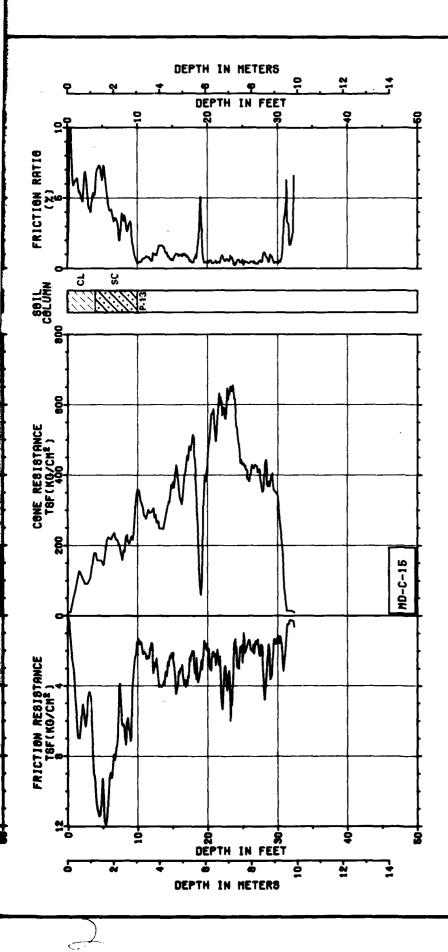
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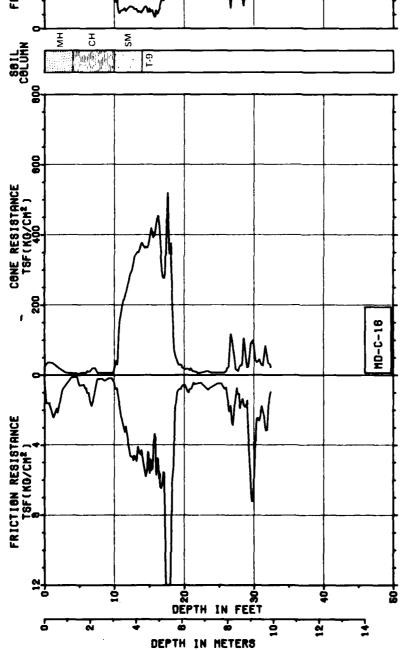


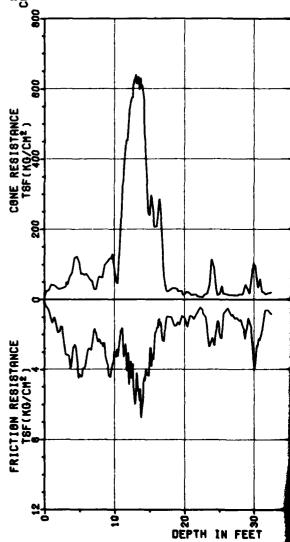
CONE PENETROMETER TEST MO-C-12, 14 & 18
OPERATIONAL BASE SEE

MX SITING INVESTIGATION

FIGURE ILG-1 S OP 28

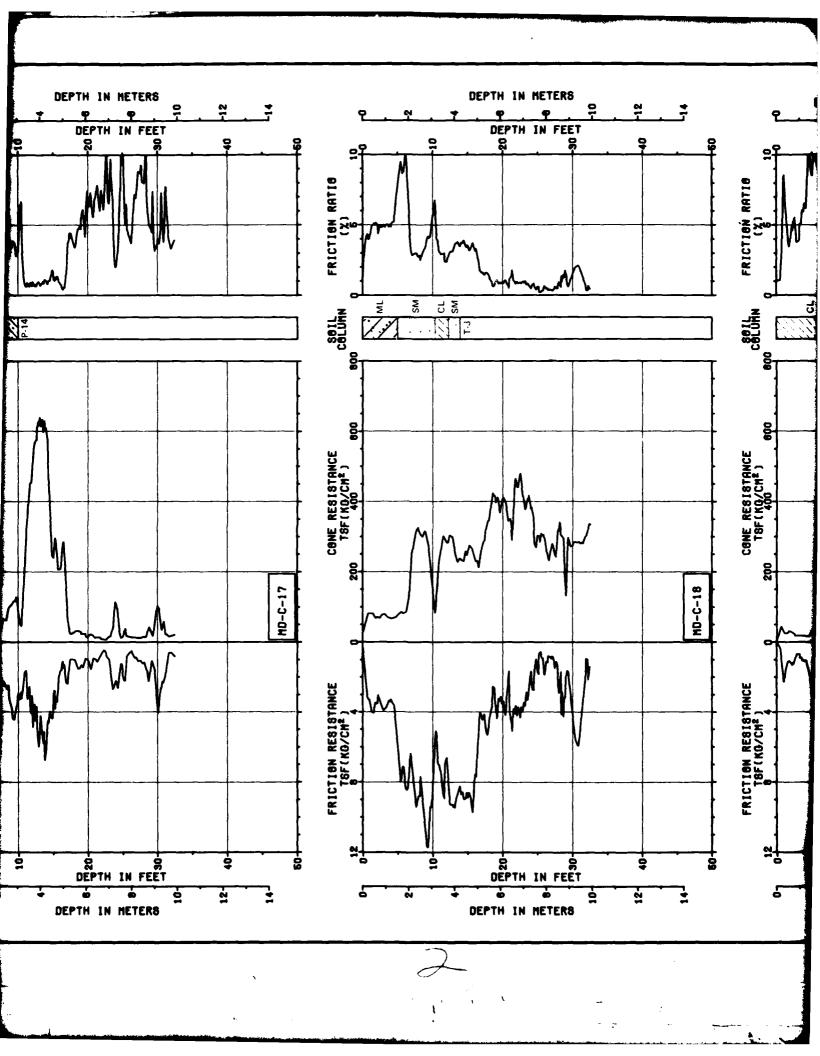
TUBRO NATIONAL INC.

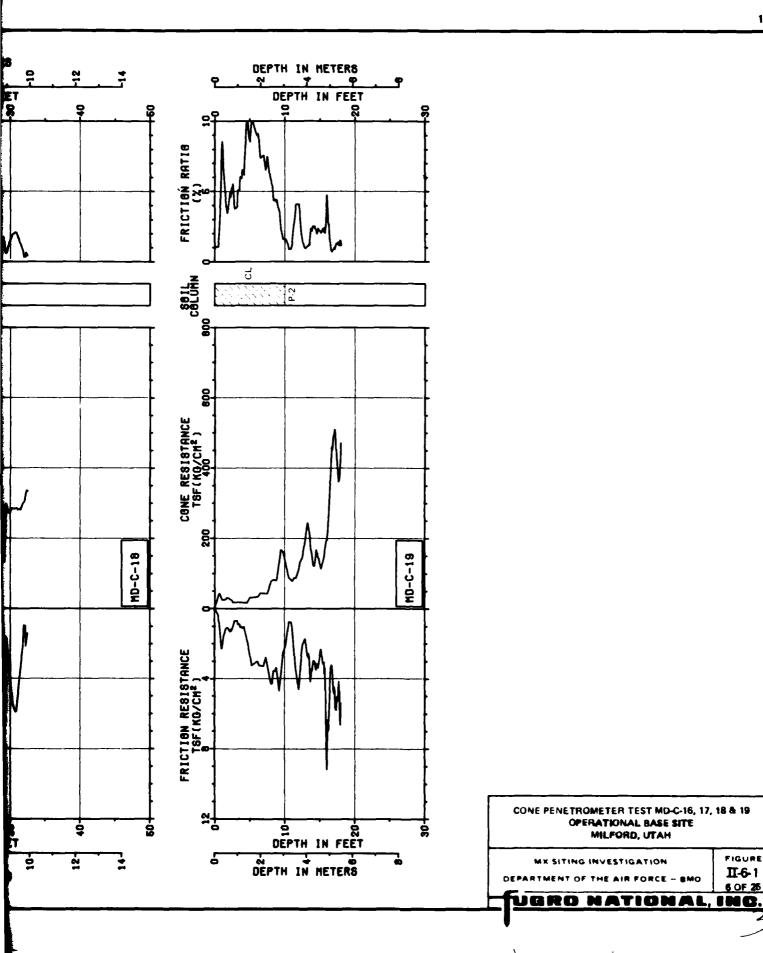




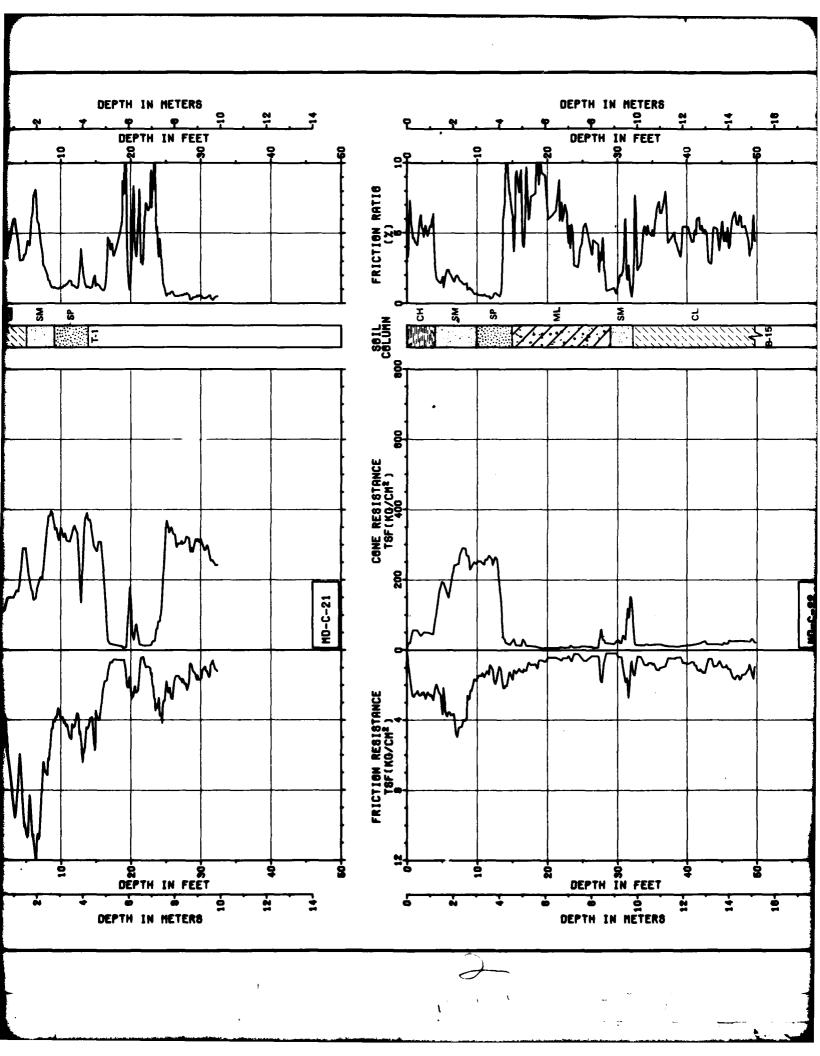
DEPTH IN METERS

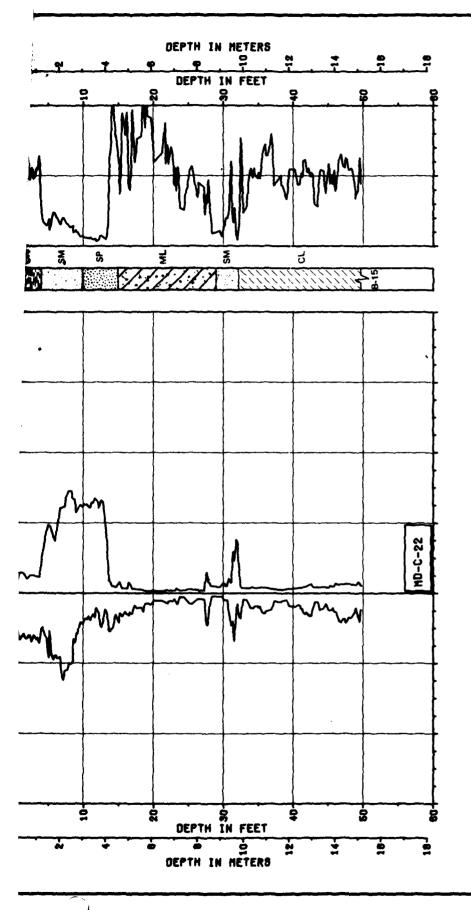
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CONE PENETROMETER TEST MD-0-20, 21 & 22 OPERATIONAL BASE SITE MELFORD, UTAH

MX SITING INVESTIGATION

FIGURE

DEPARTMENT OF THE AIR FORCE - BMO

II-6-1 7 OF 25

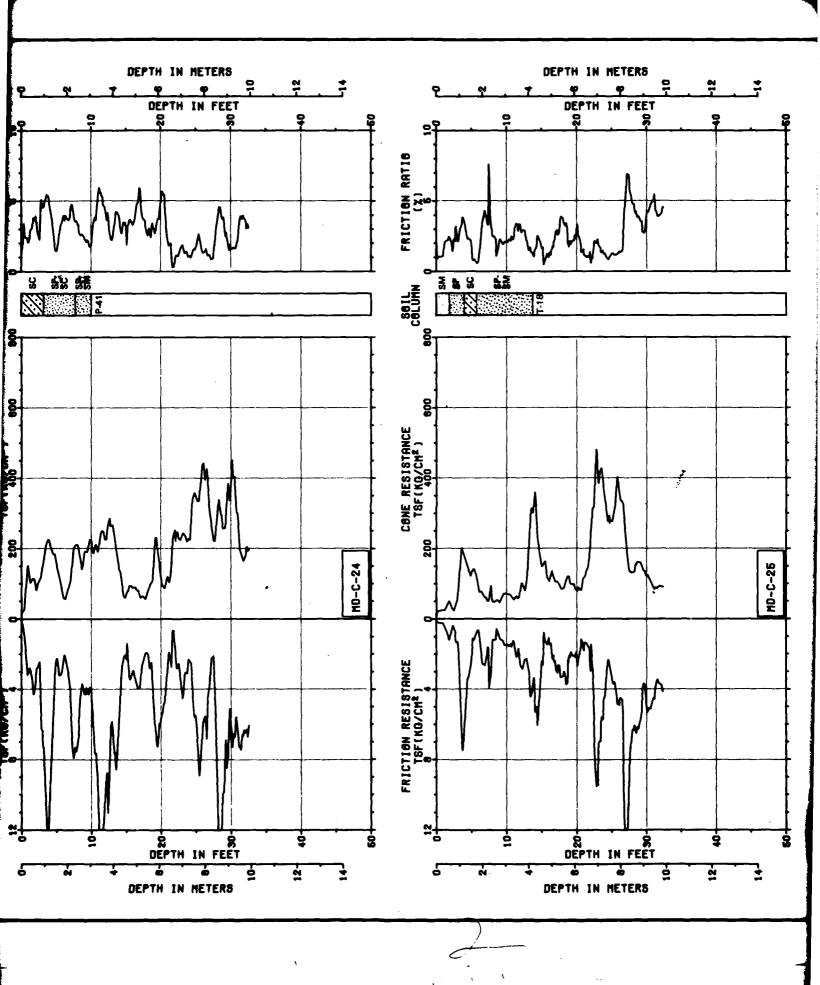
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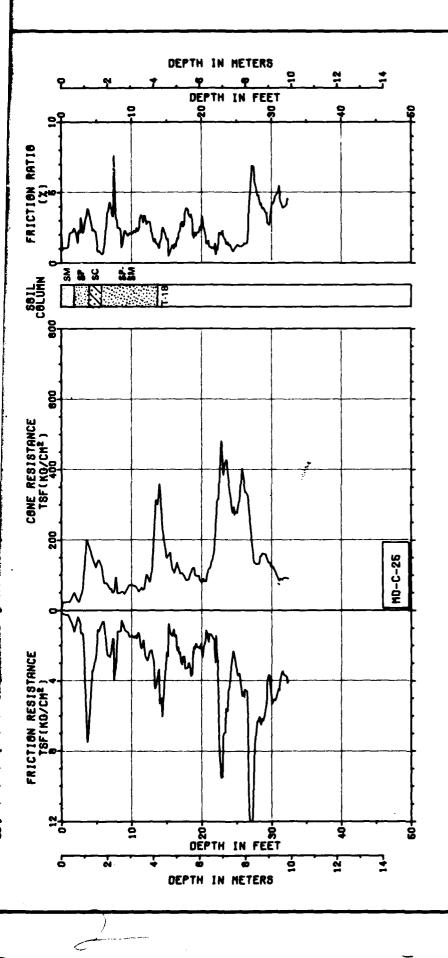
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CONE PENETROMETRIA TEST NO Q22, 36 & 25 OPERASSONIA BARS (I)

MX SITING INVESTIGATION

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FIGURE

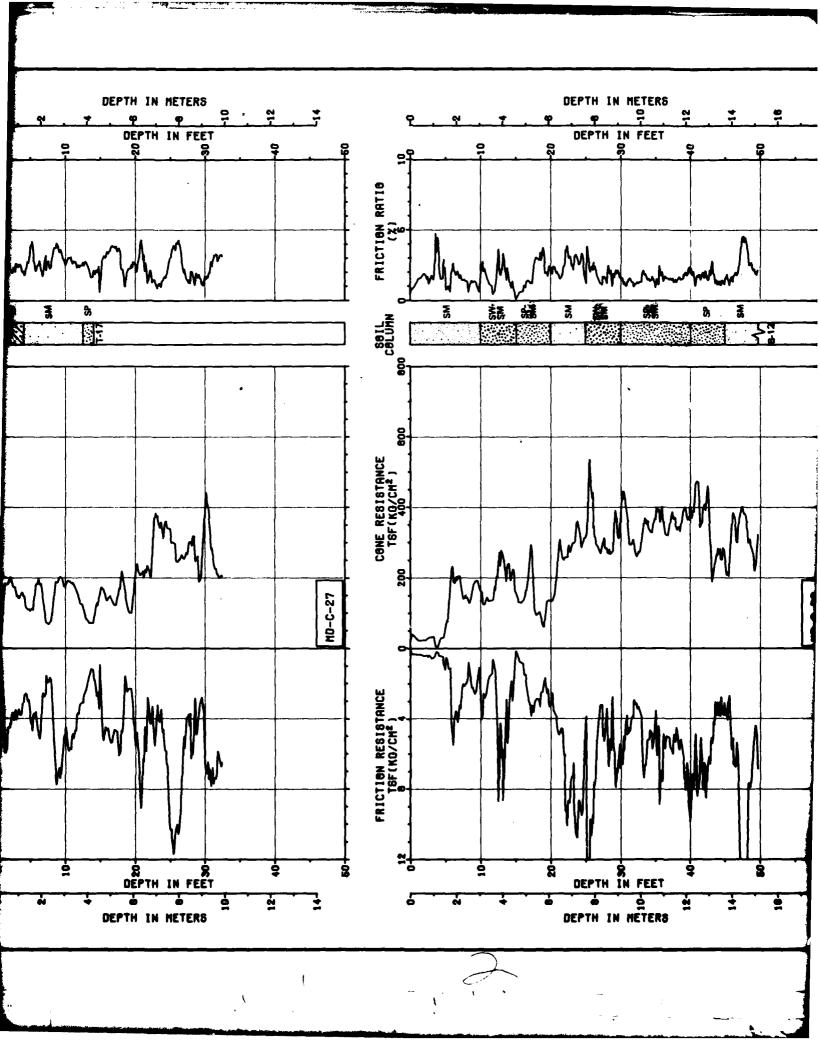
DEPARTMENT OF THE AIR FORCE - BMO

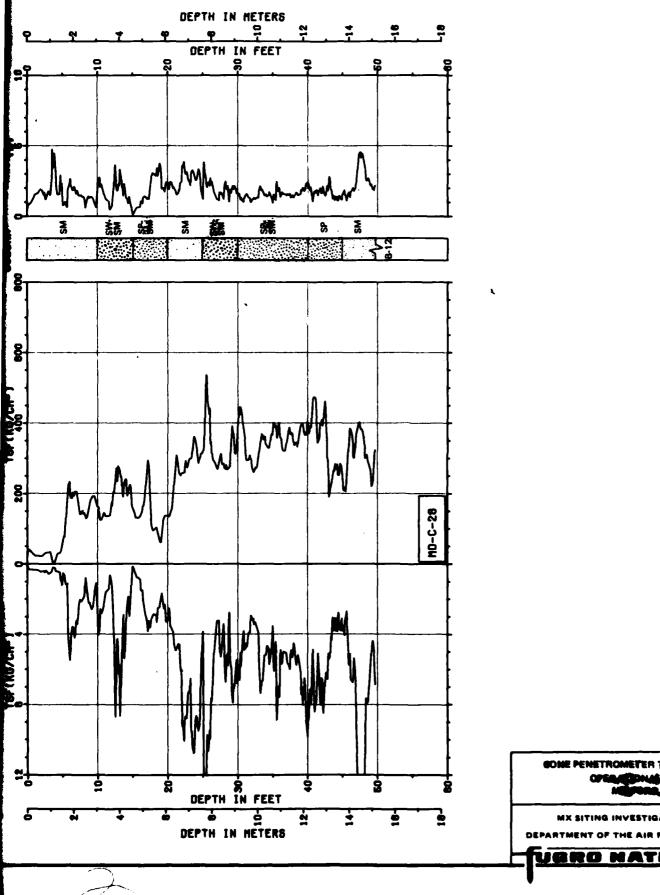
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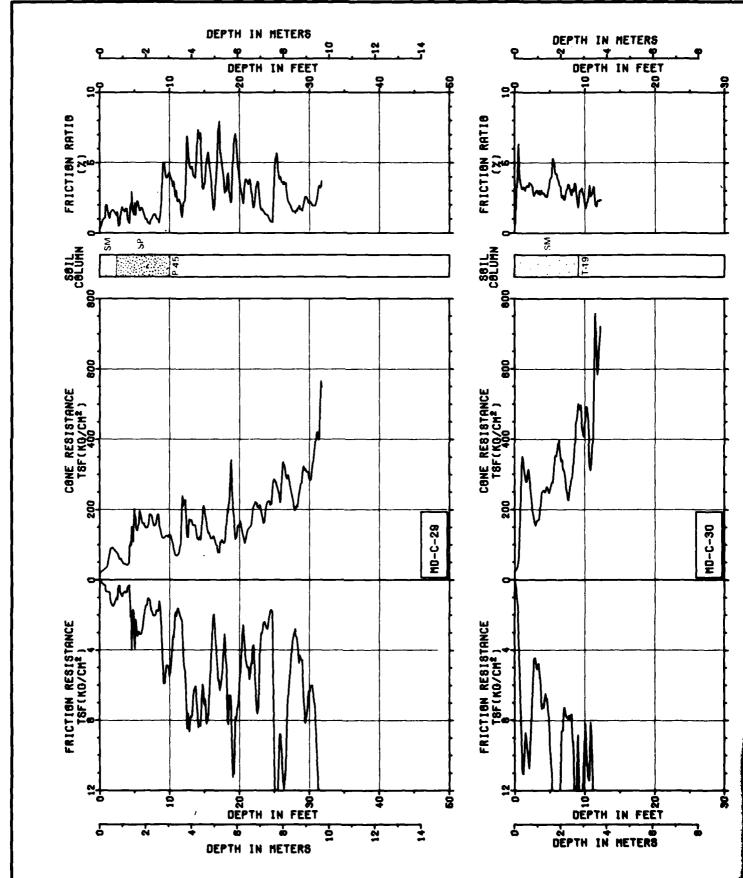
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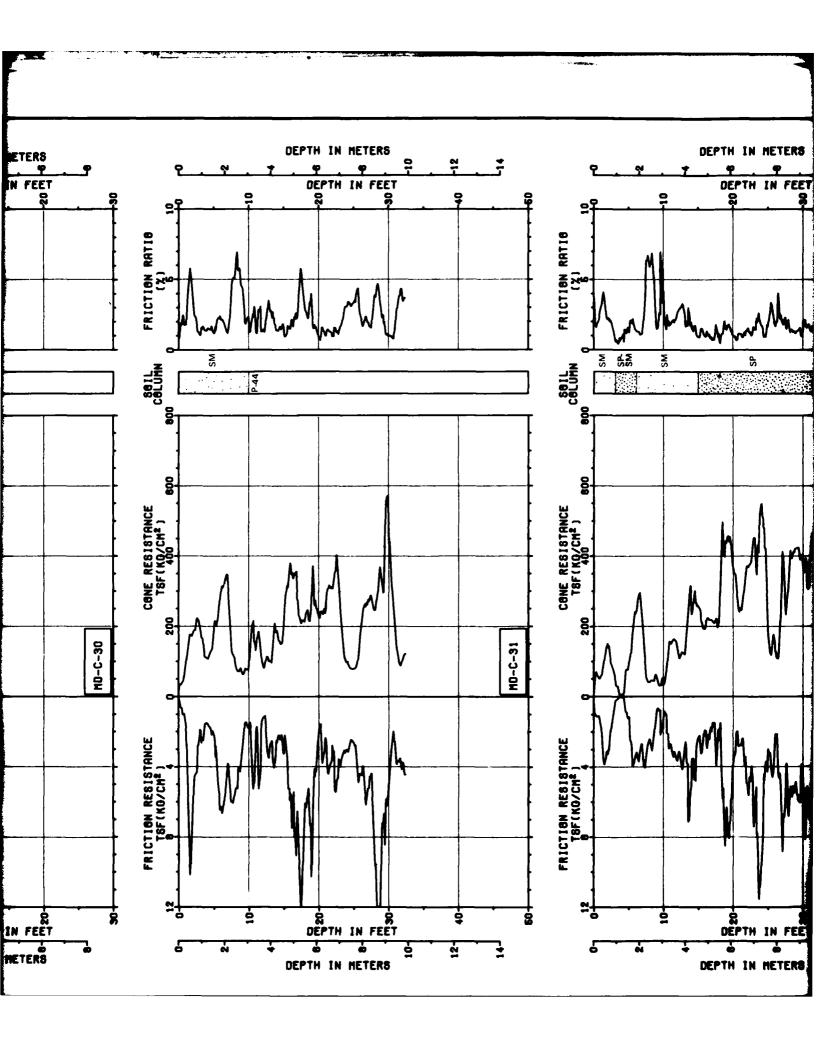
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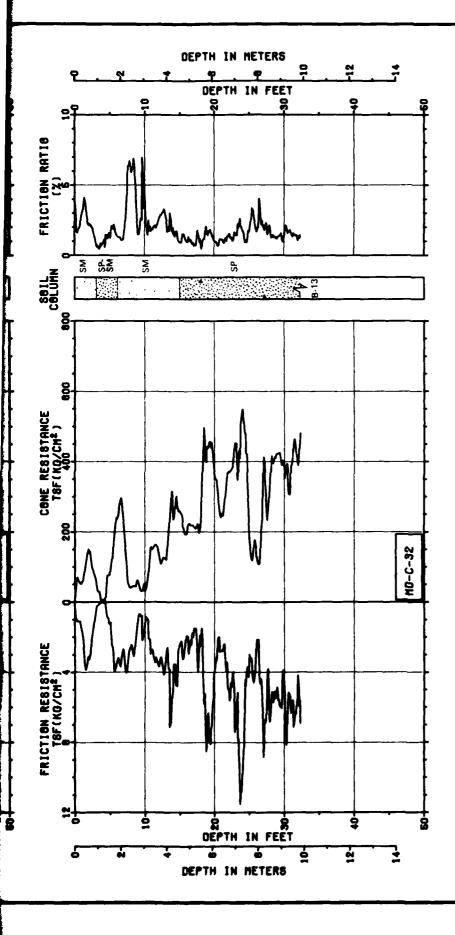
DEPTH IN METERS







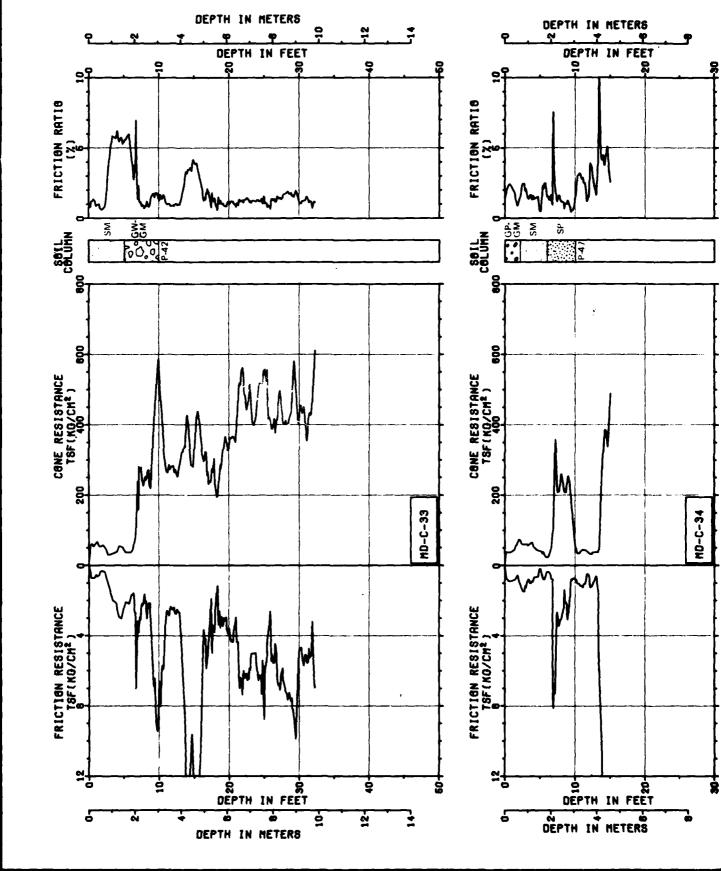


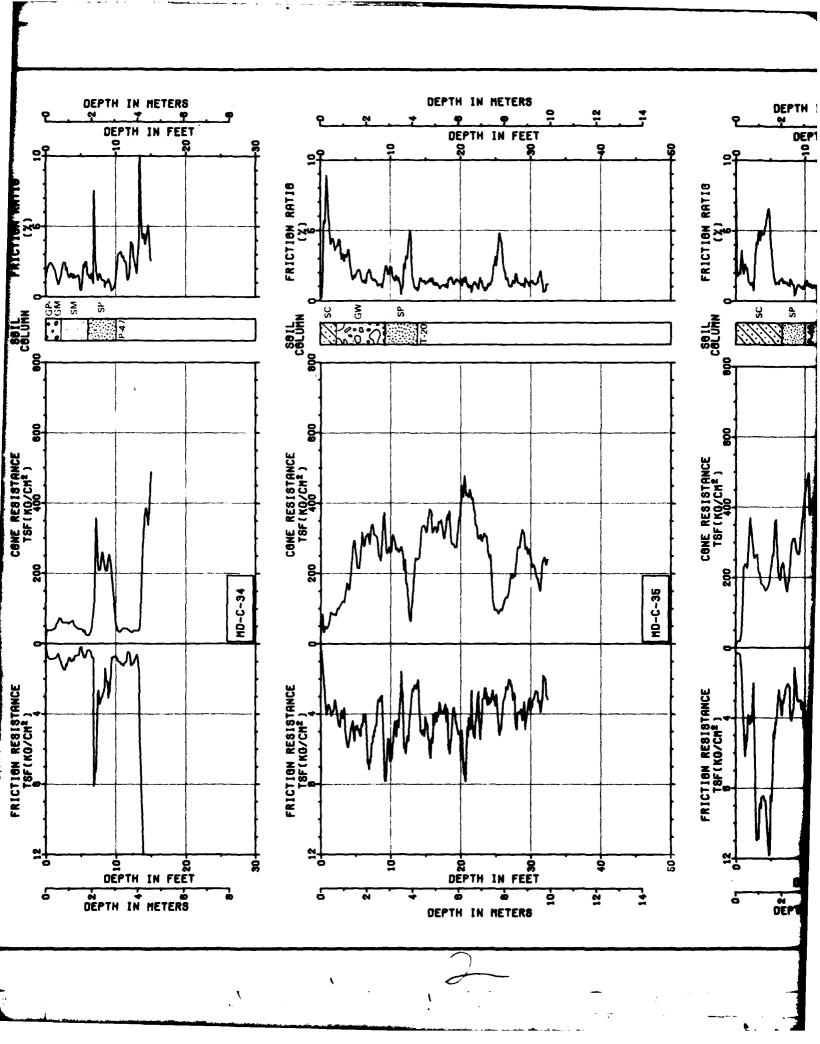


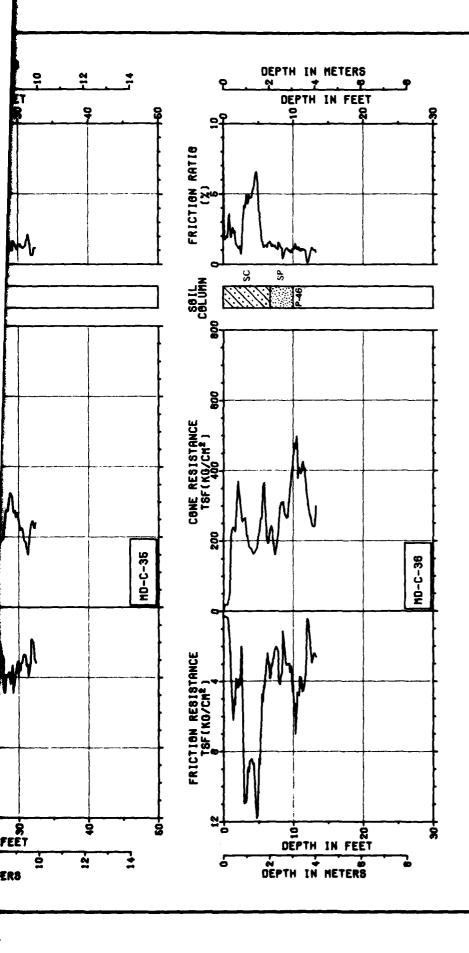
CONE PENETROMETER TEST MD-C-29, 30, 31 & 32 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION

FIGURE II-6-1 10 OF 25







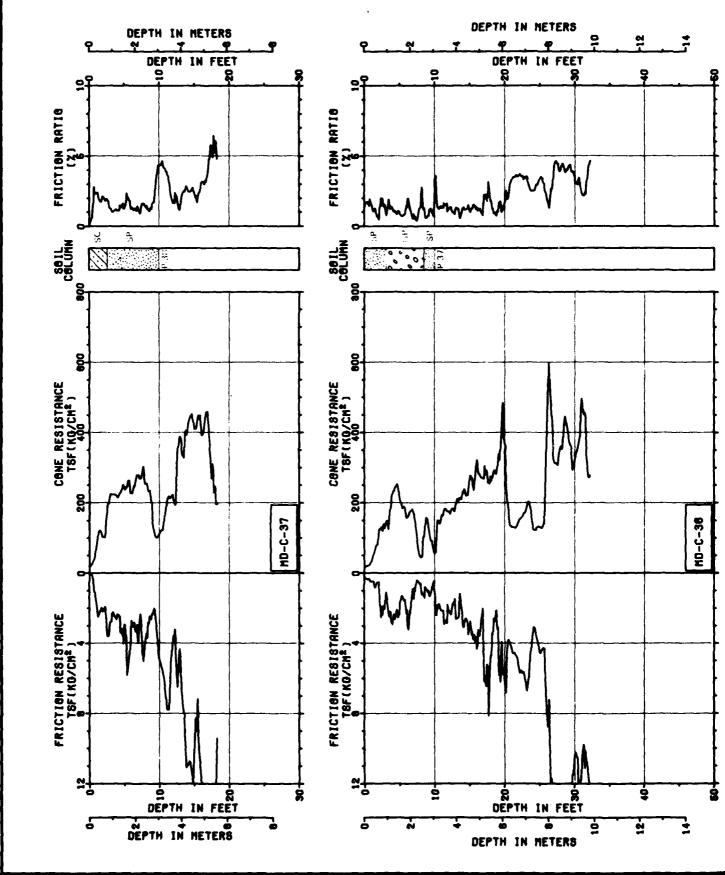
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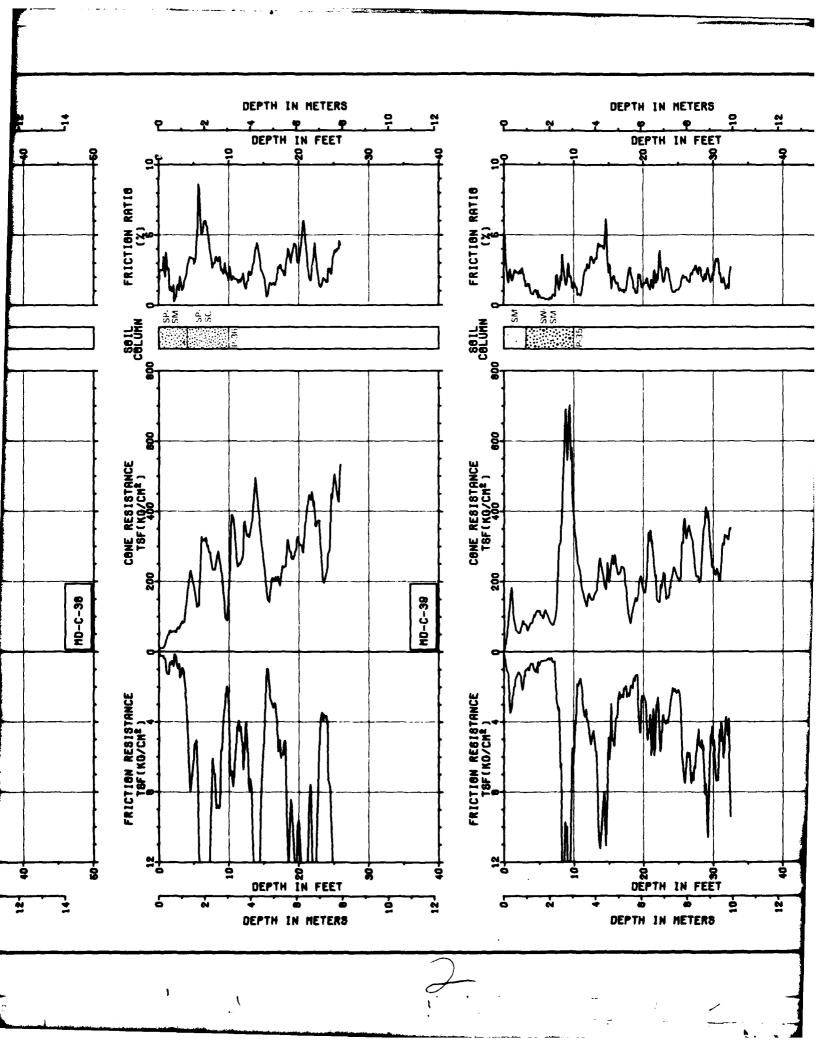
MX SITING INVESTIGATION

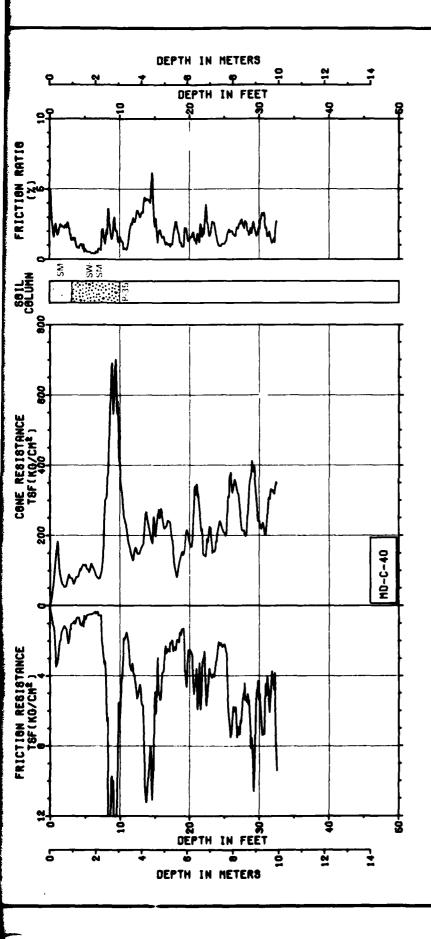
DEPARTMENT OF THE AIR FORCE - BMO

FIGURE II-6-1 11 OF 25

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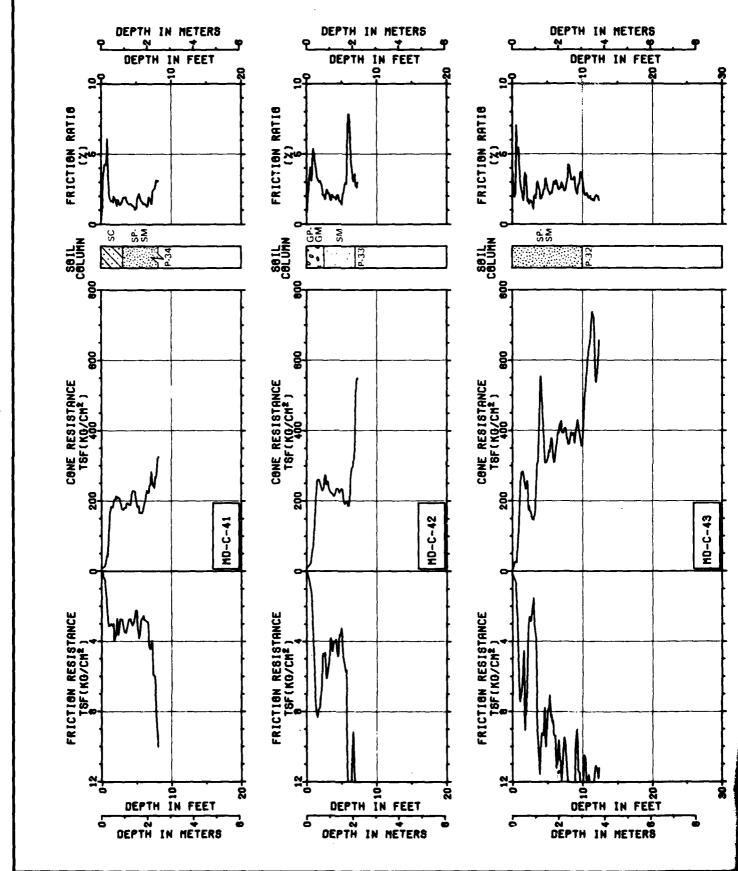


CONE PENETROMETER TEST MD-C-37, 38, 39 & 40 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION

FIGURE

II-6-1 12 OF 25

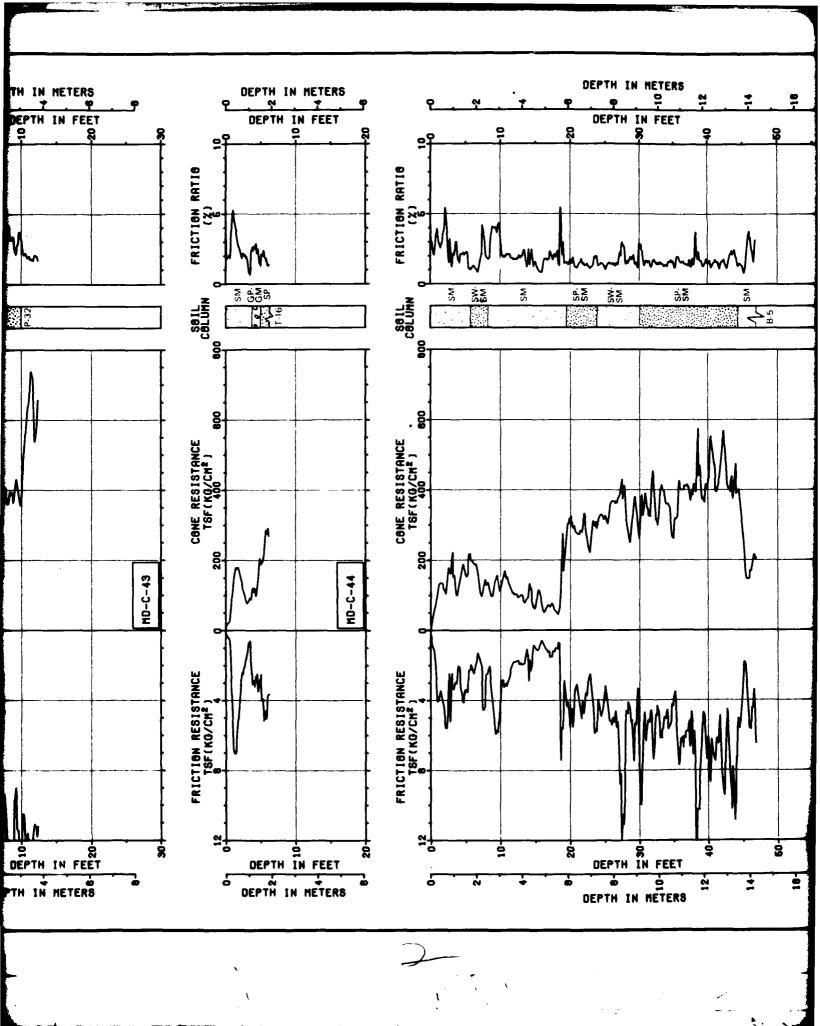


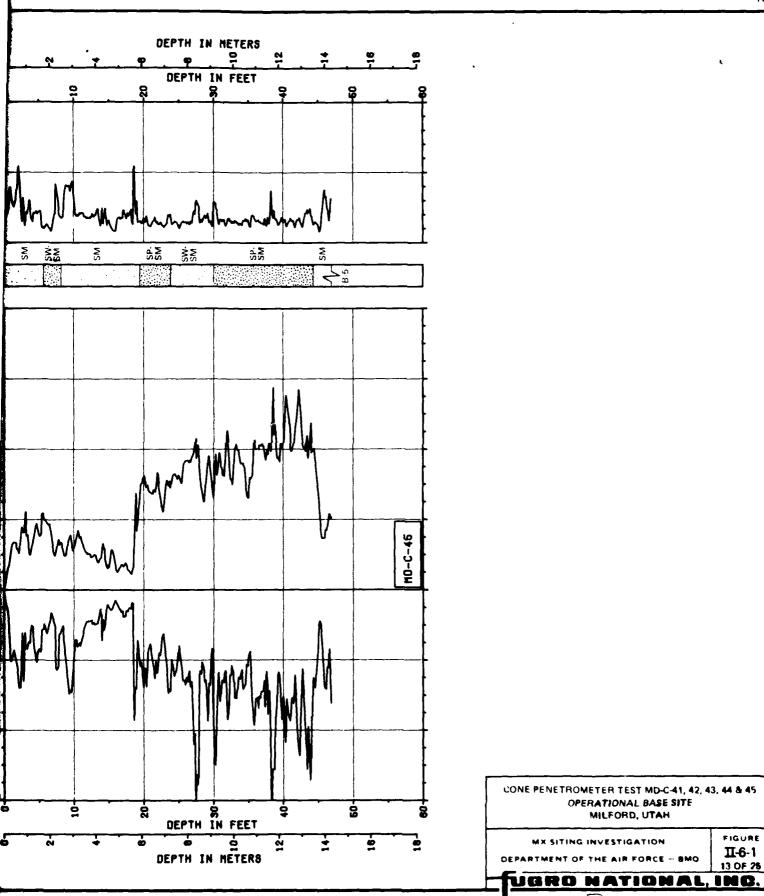
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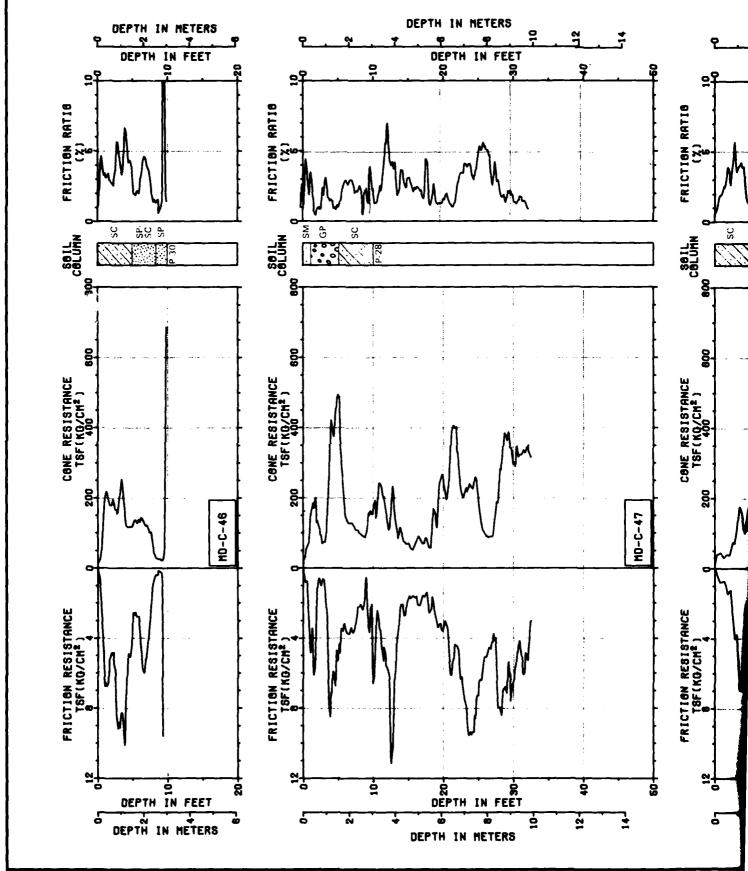
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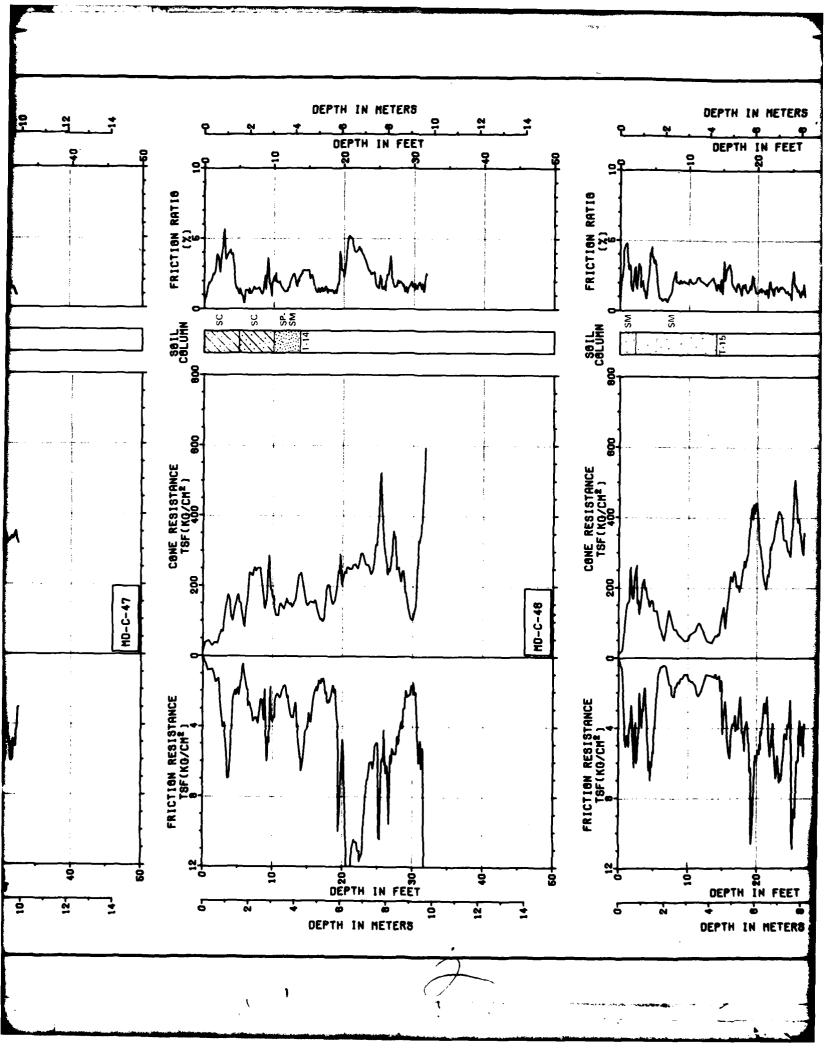
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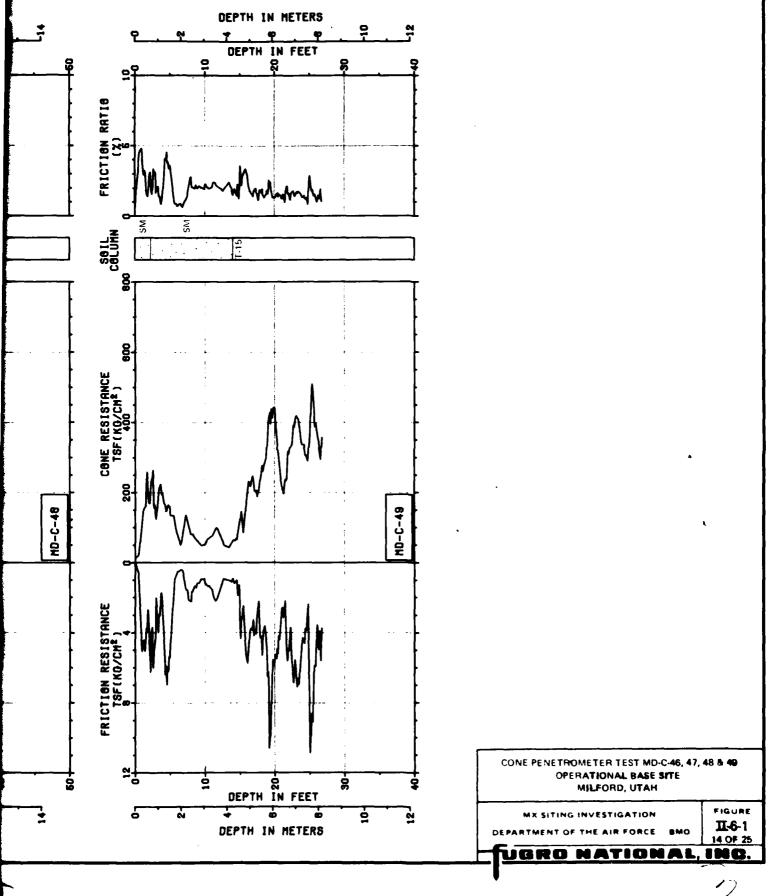
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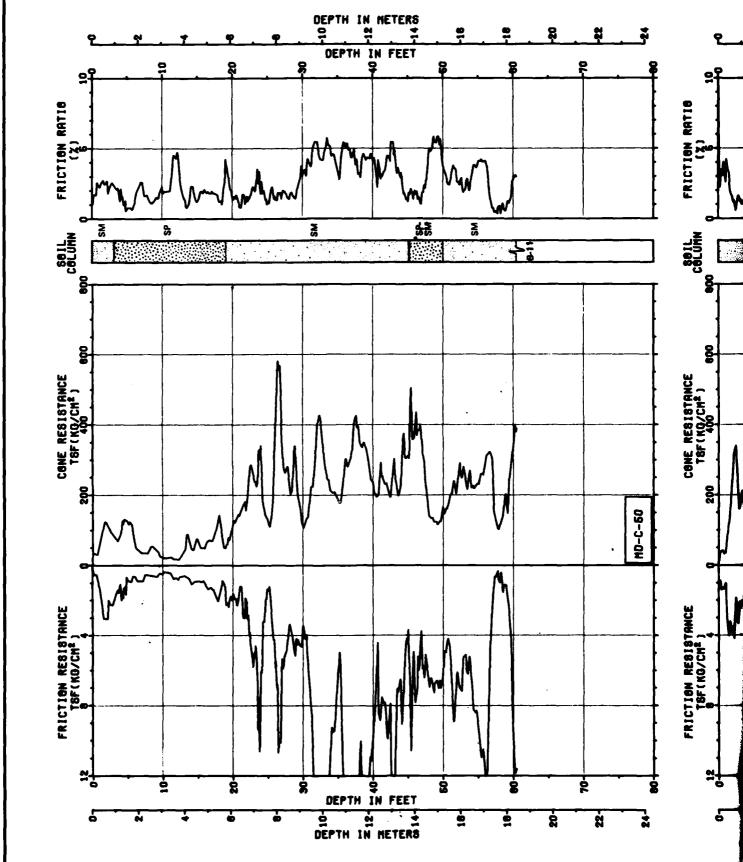










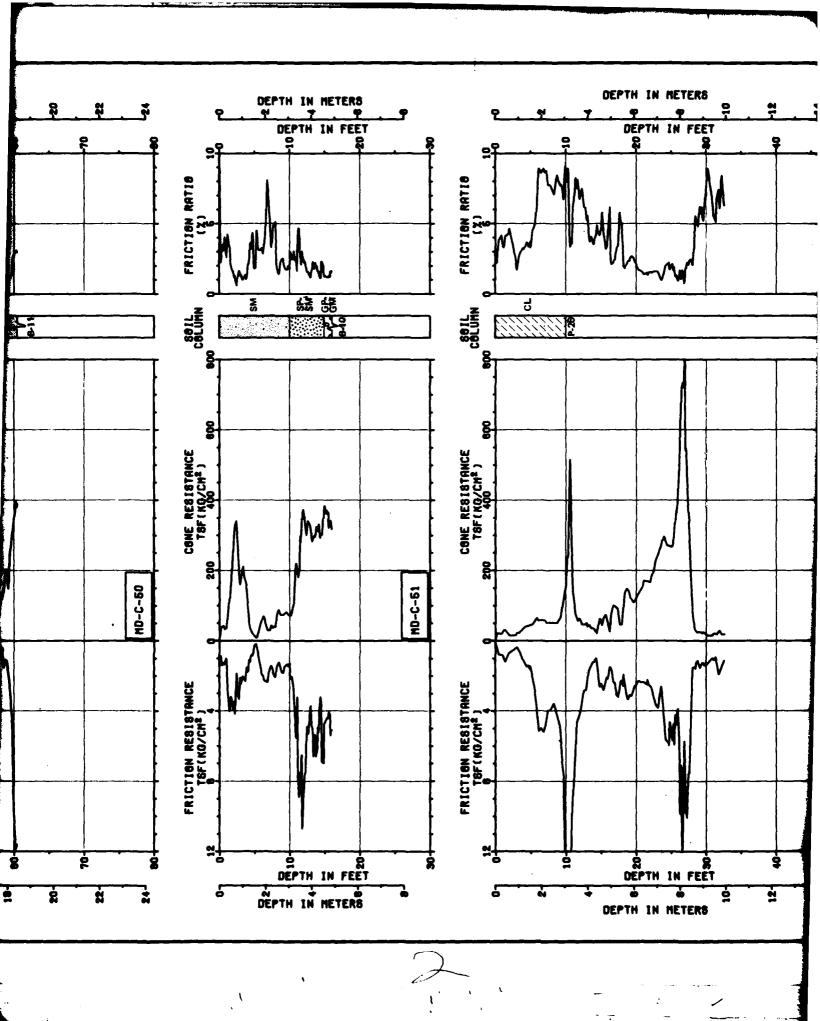


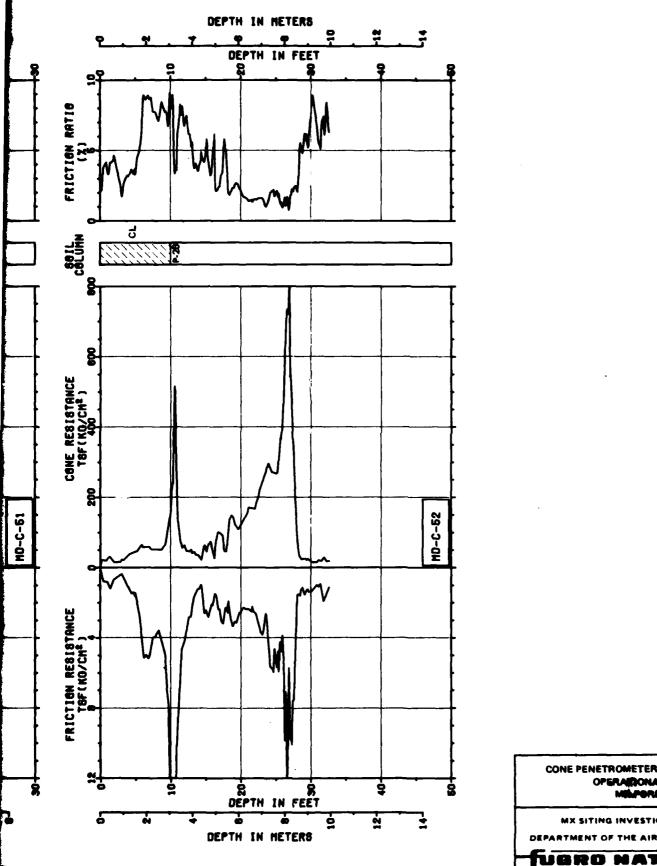
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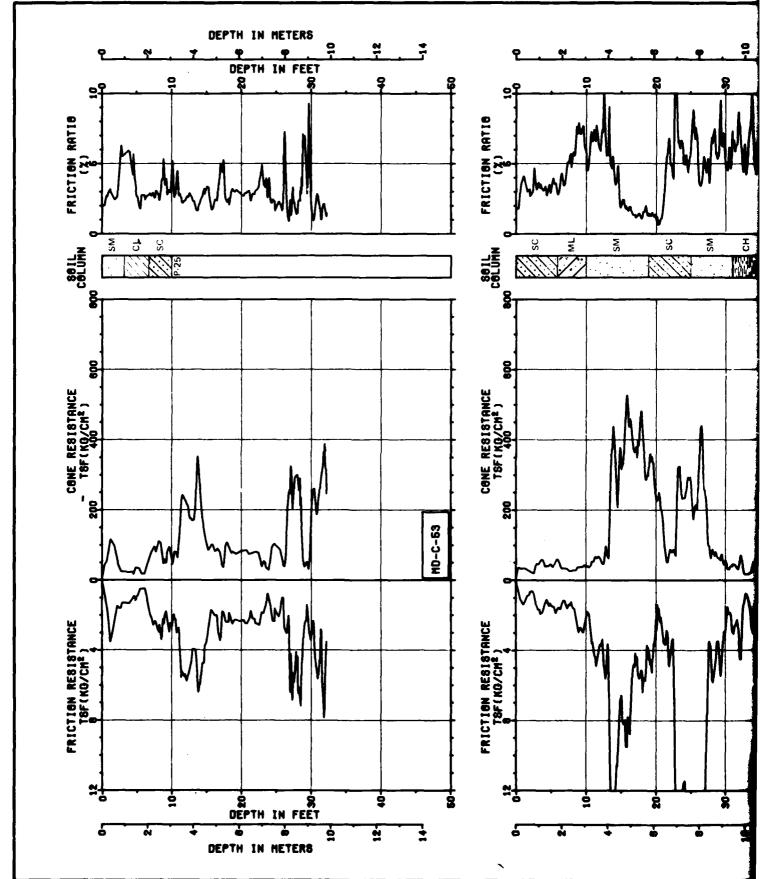


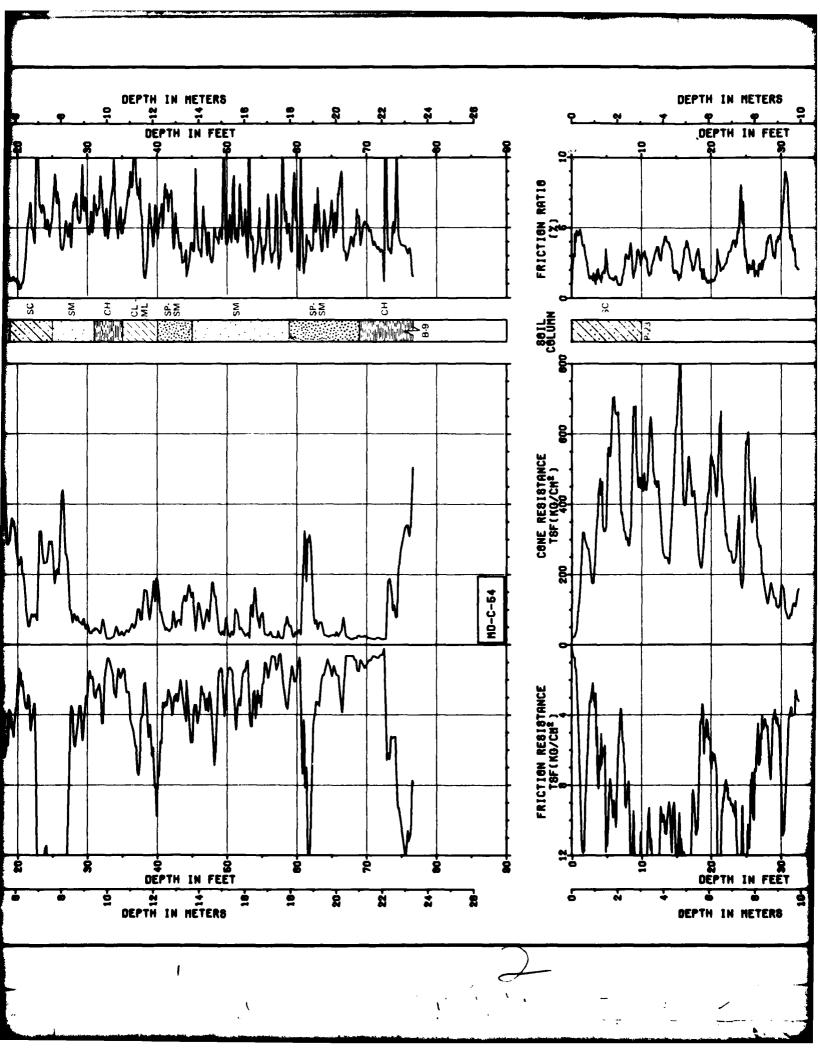
CONE PENETROMETER TEST MD-C-80, 51-2 52 OPERAIRONA, SASE SEE MEMPORA, UTAH

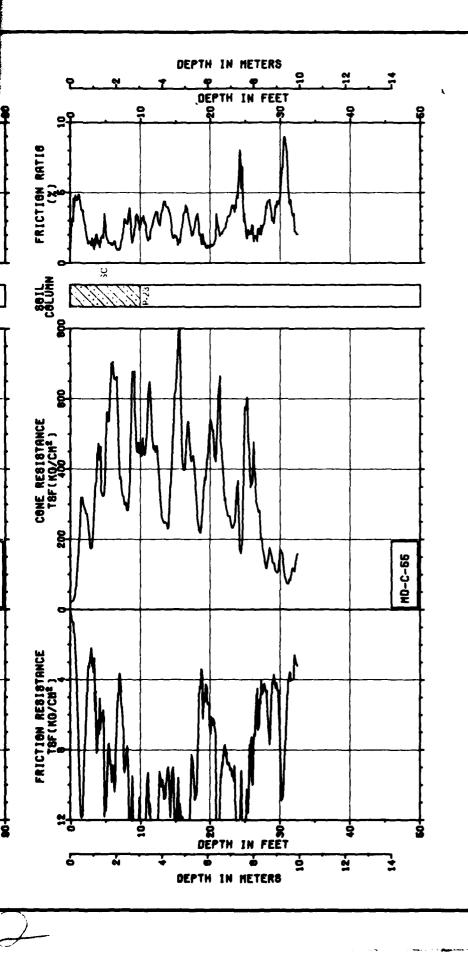
MX SITING INVESTIGATION

FIGURE

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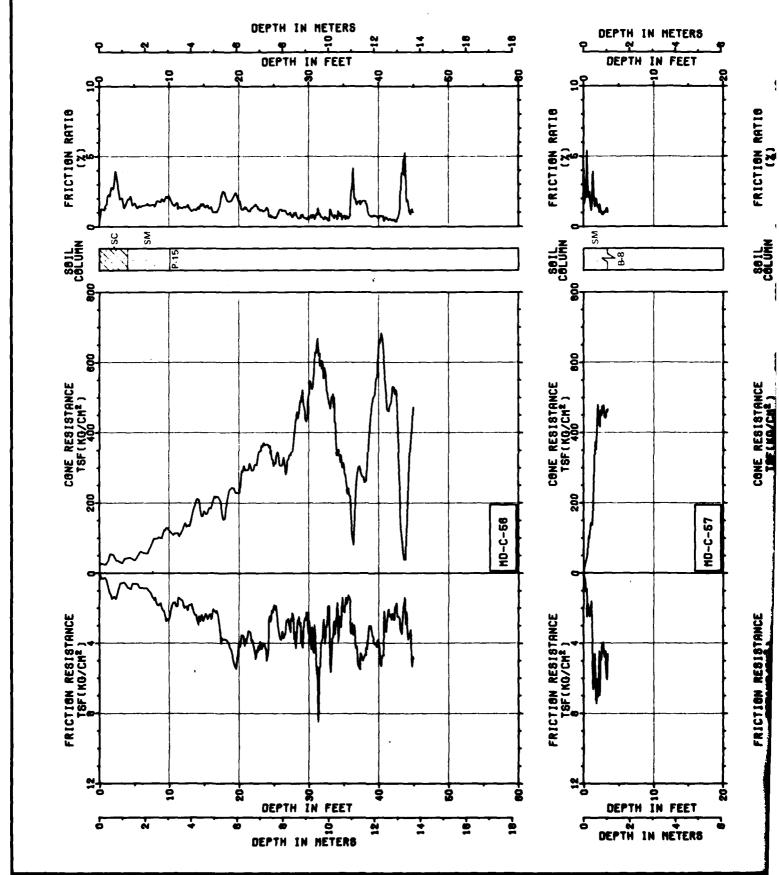
CONE PENETROMETER TEST MD-C-53, 54 & 56
OPERATIONAL BASE SITE
MILFORD, UTAH

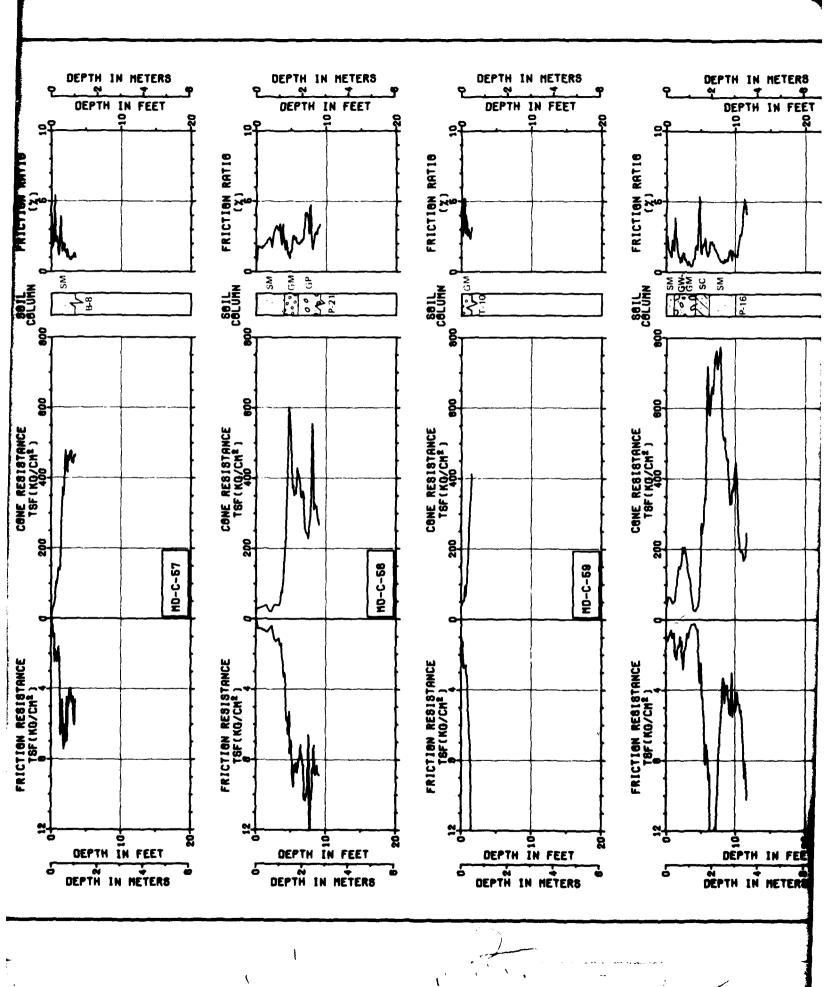
MX SITING INVESTIGATION

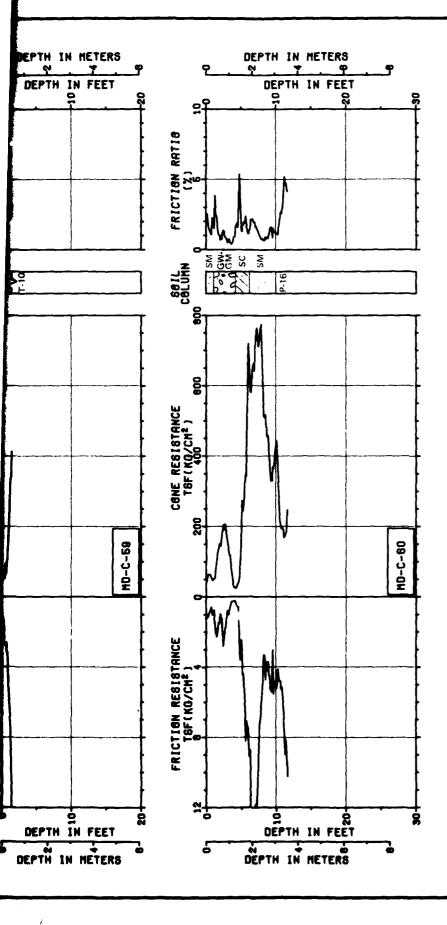
II-6-1 16 OF 25

DEPARTMENT OF THE AIR FORCE - 8MO

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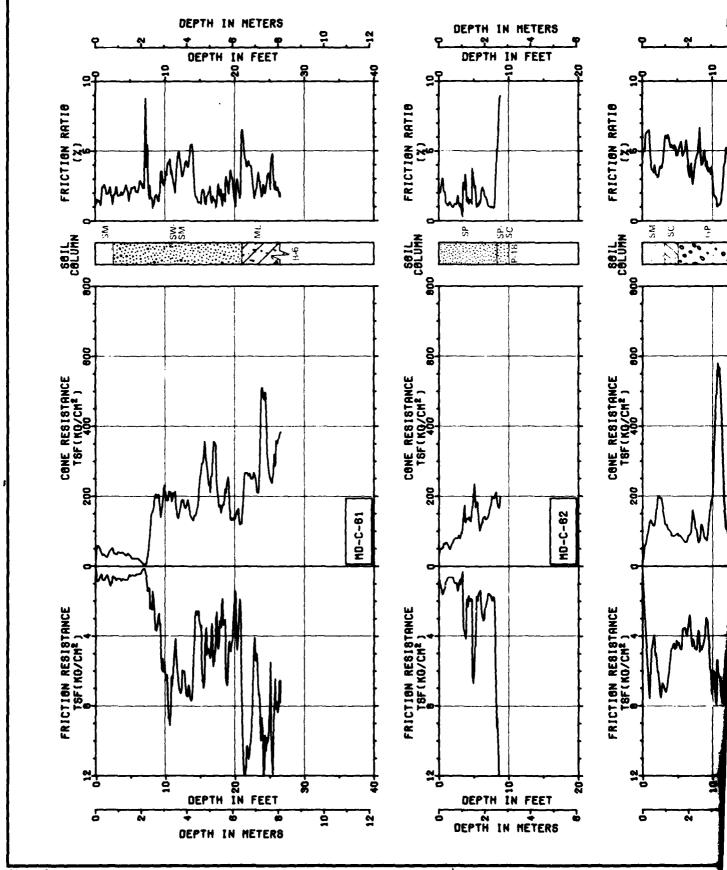


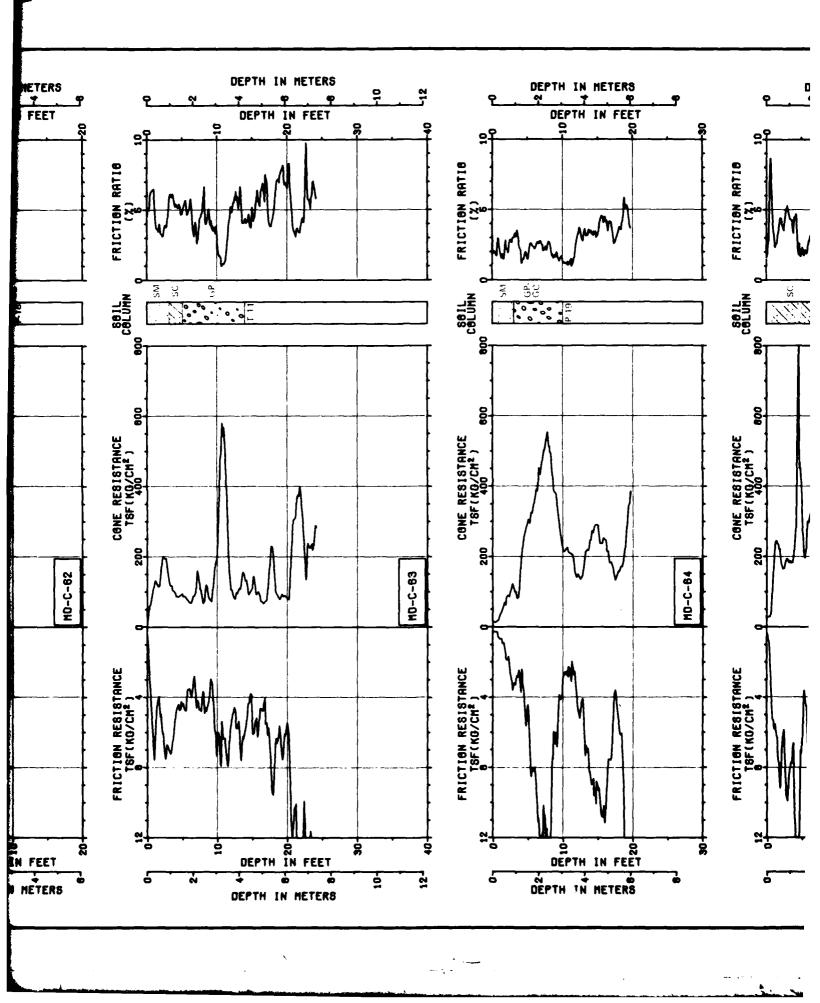


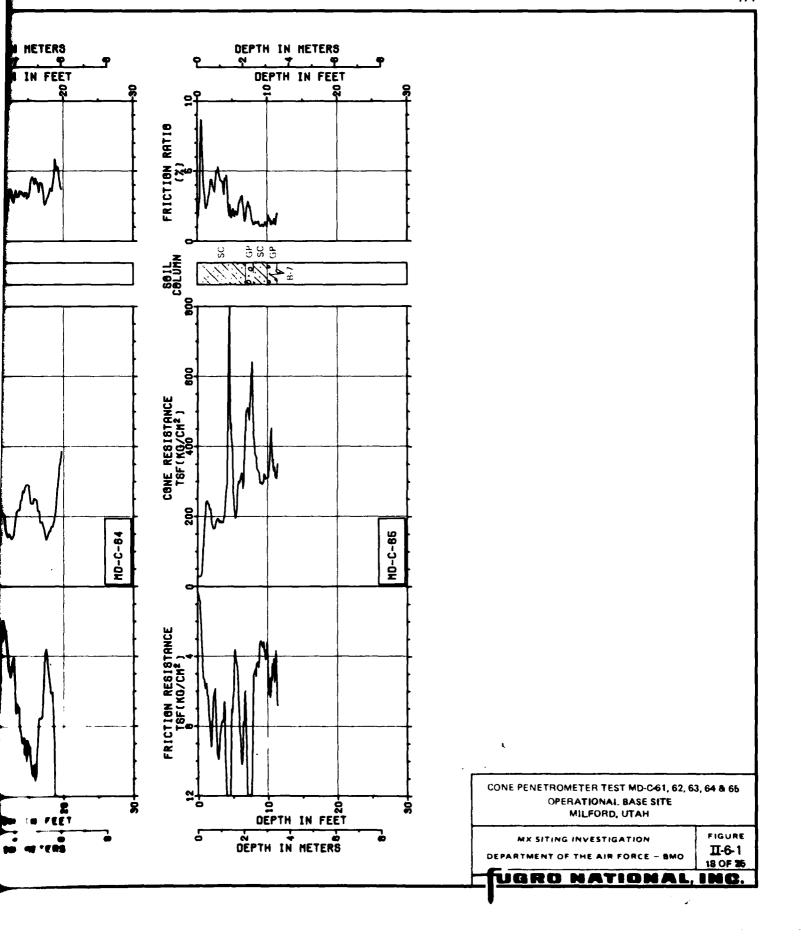
CONE PENETROMETER TEST MD-C-56, 57, 58, 59 & 60 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION

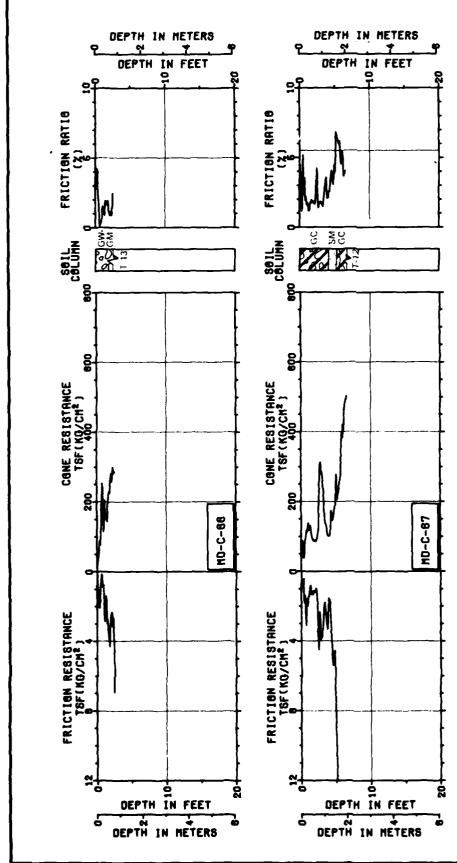
FIGURE II-6-1 17 OF 25







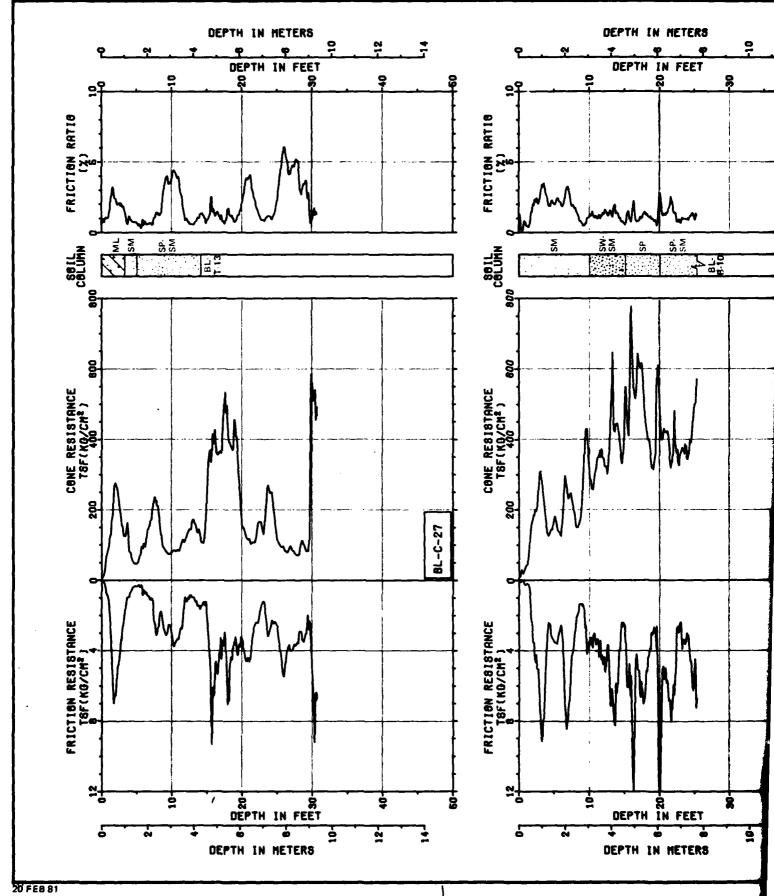




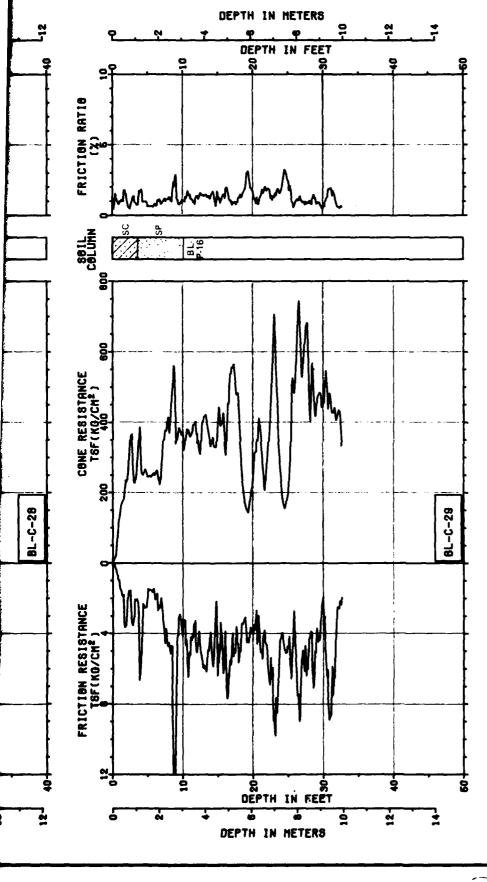
CONE PENETROMETER TEST MD-C-66 OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION

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CONE PENETROMETER TEST BL-C-27, 28 & 29 OPERATIONAL BASE 877E MILFORD, UTAH

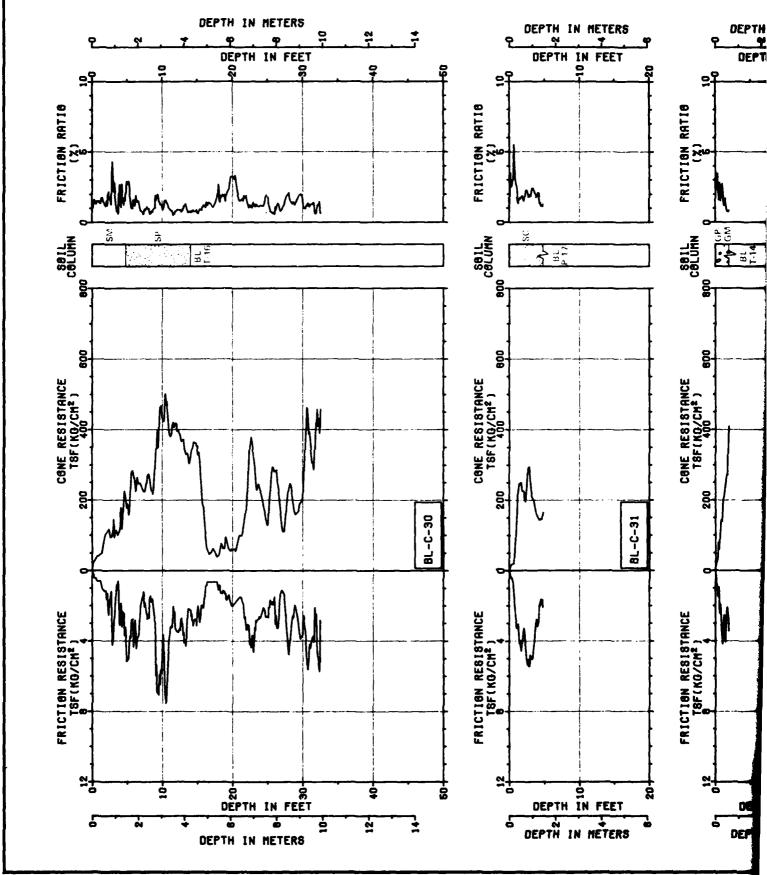
MX SITING INVESTIGATION

DEPARTMENT OF THE AIR FORCE - BMO

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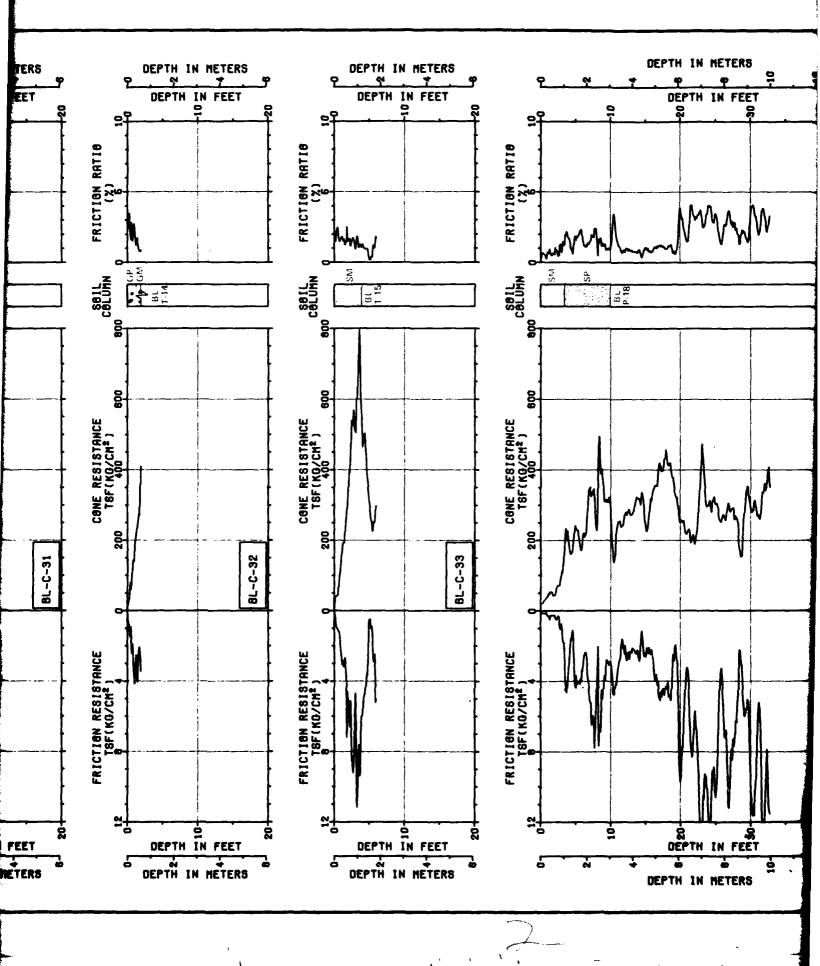
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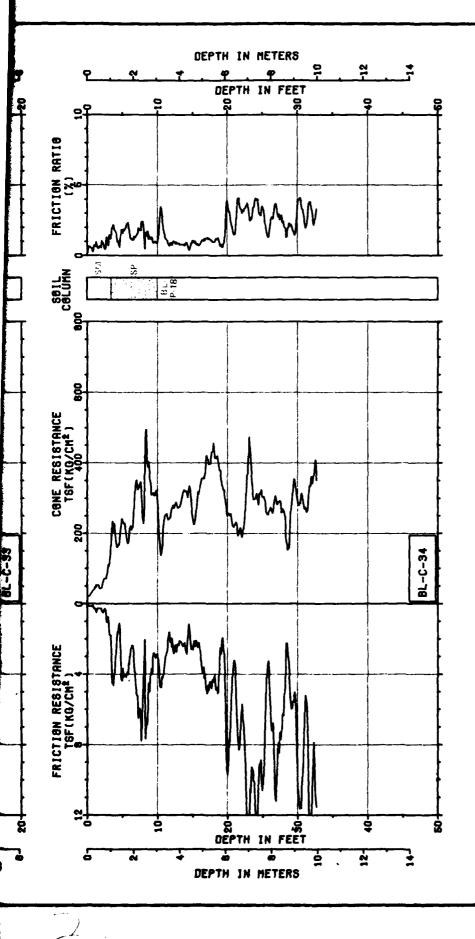


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CONE PENETROMETER TEST BL-C-30, 31, 32, 33 & 34

OPERATIONAL BASE SITE

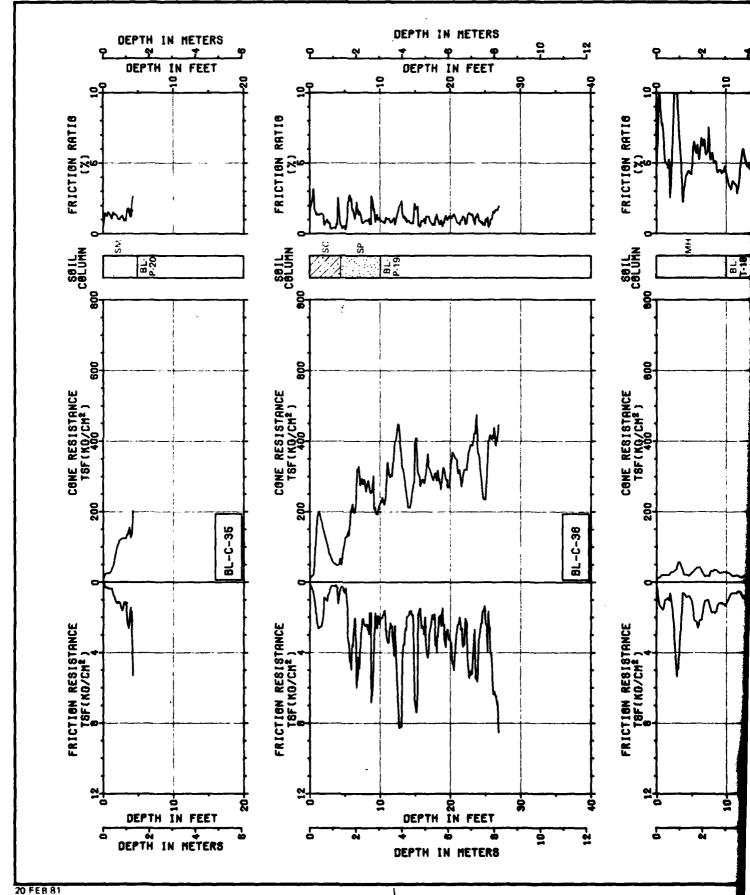
MILFORD, UTAH

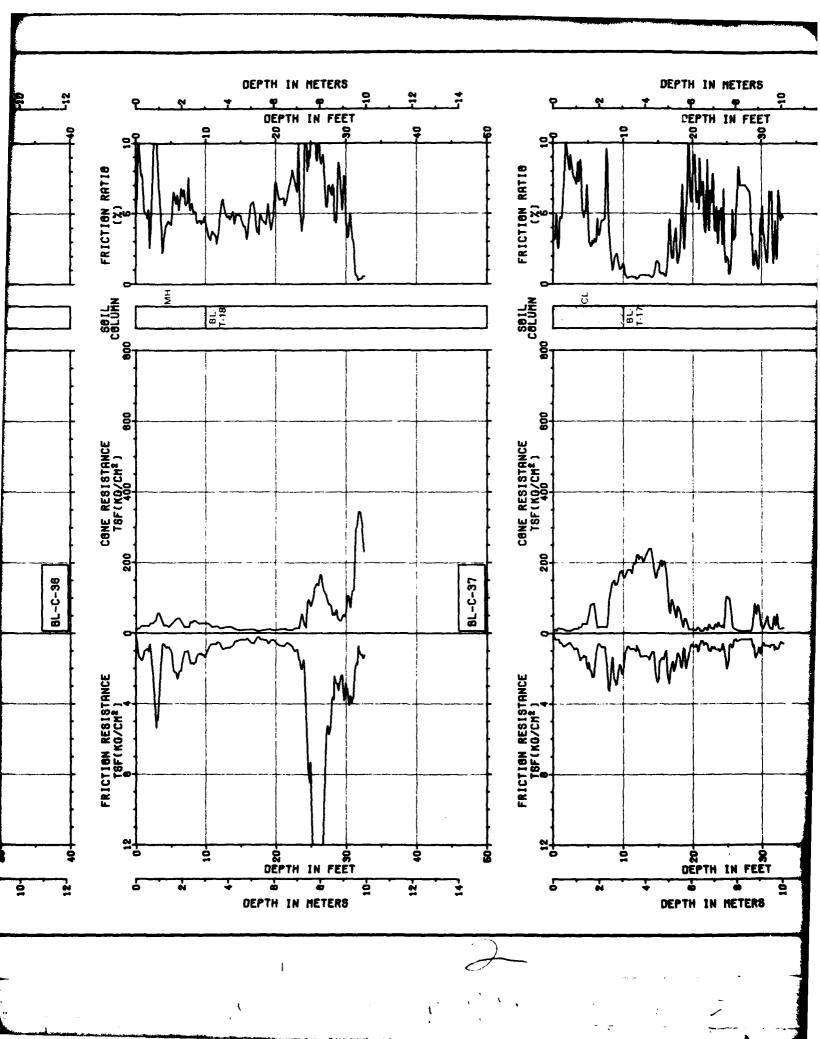
MX SITING INVESTIGATION

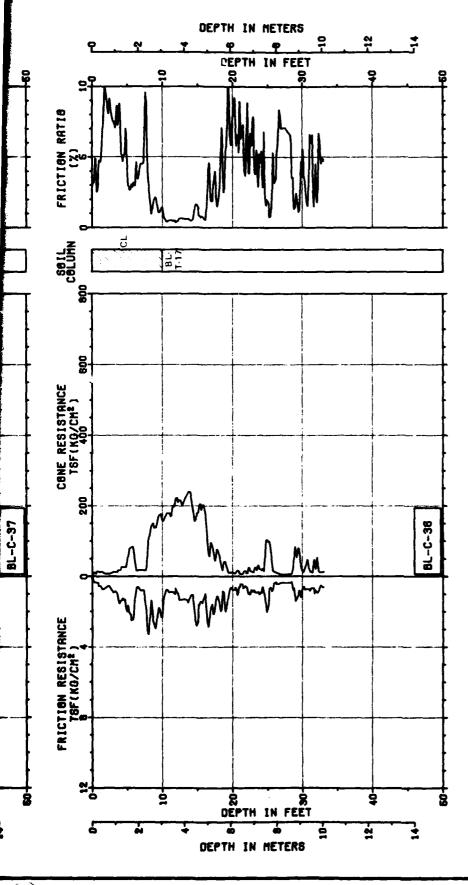
FIGURE 11-6-1 21 OF 25

DEPARTMENT OF THE AIR FORCE - 8MO

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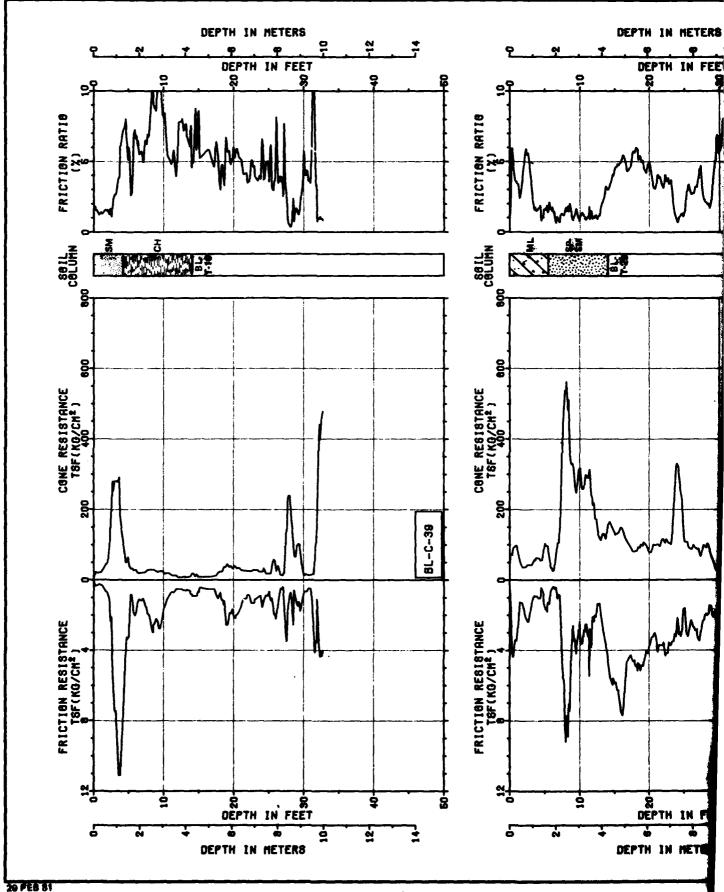
CONE PENETROMETER TEST BL-C-35, 36, 37 & 38 OPERATIONAL BASE SITE MILFORD, UTAH

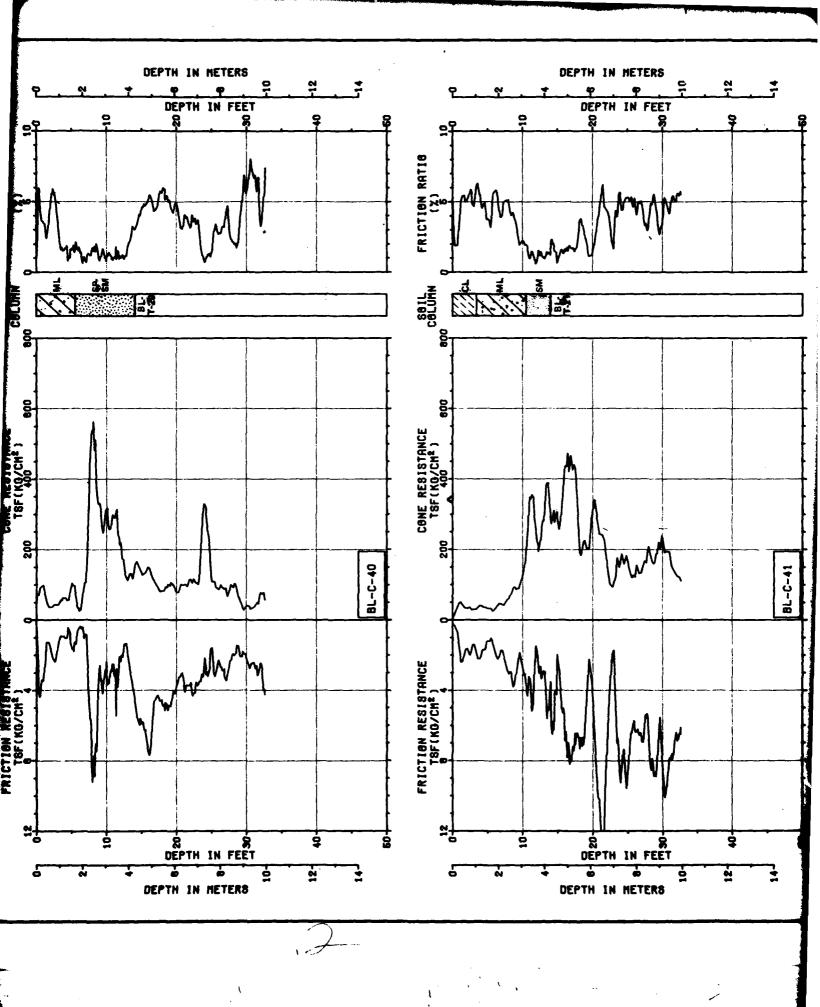
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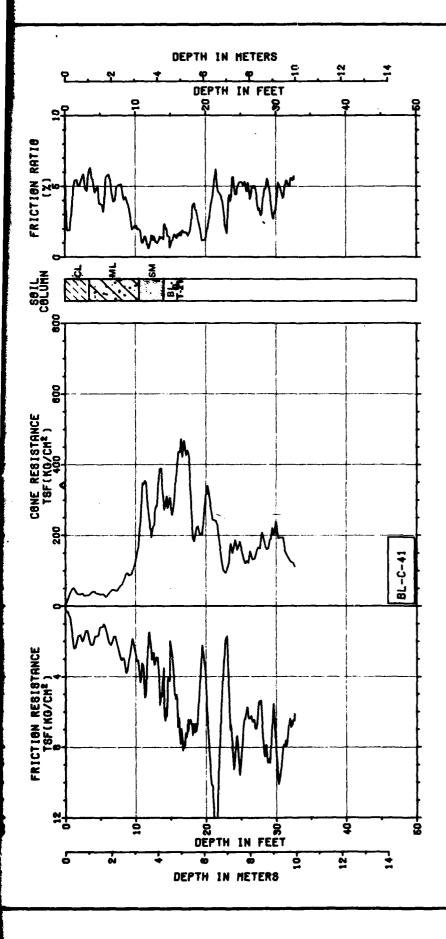
IE6-1 22 OF 26

FIGURE

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CONE PENETHOMETER TEST BLO-30, 40 & 41 OPERASIONAL BASE SITE MEMORID, UEAH

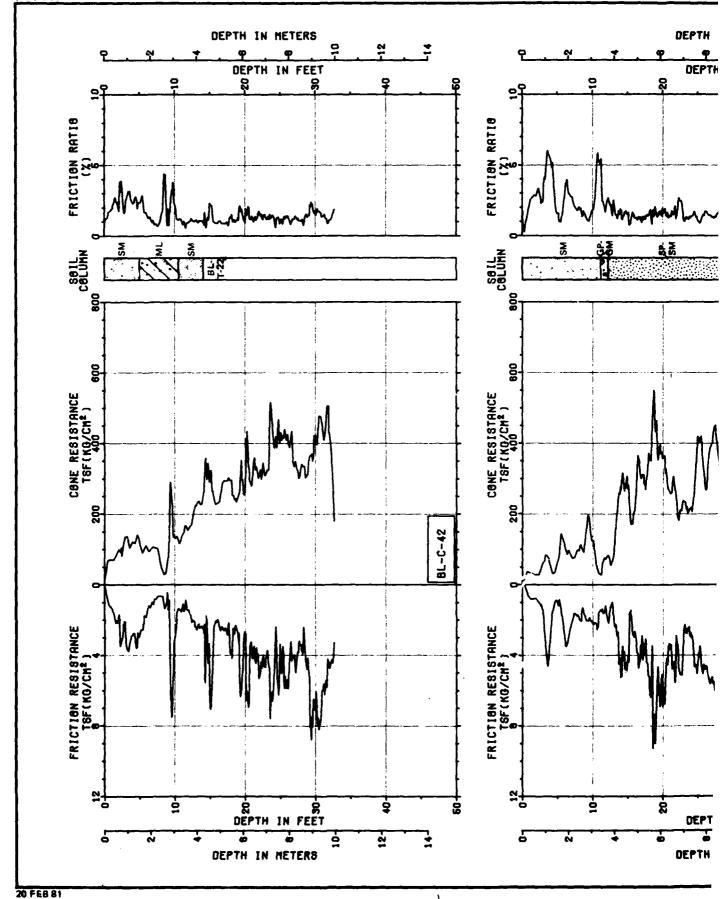
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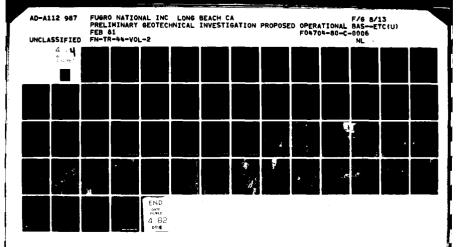
DEPARTMENT OF THE AIR FORCE - BMO

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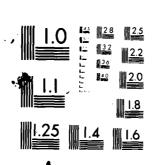
vgrd national, inc



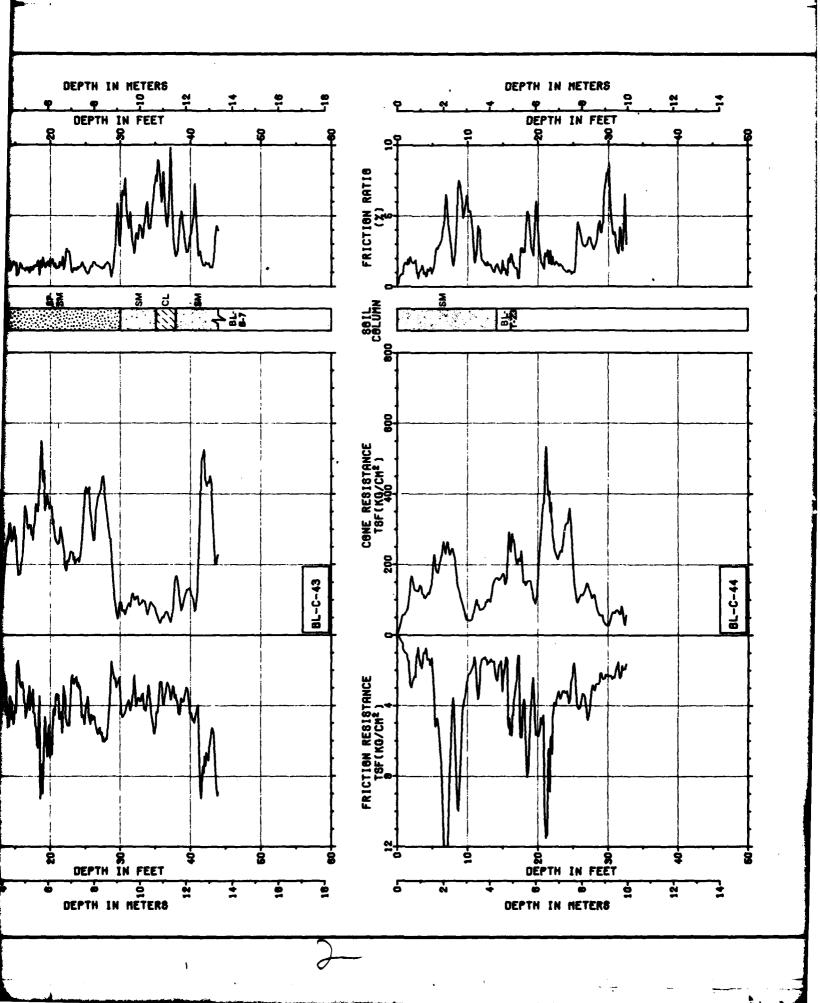


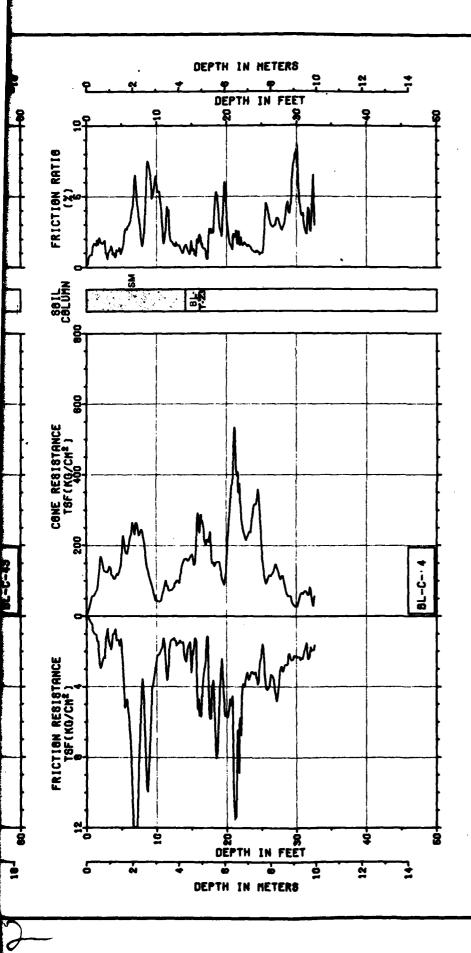


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MICROCOPY RESOLUTION TEST CHART

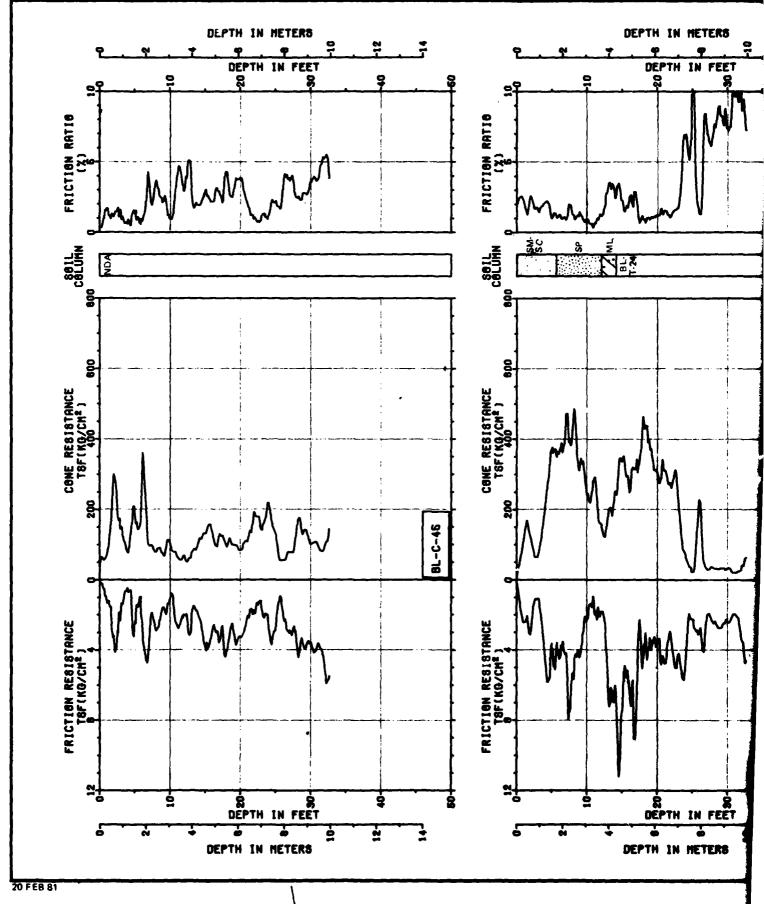




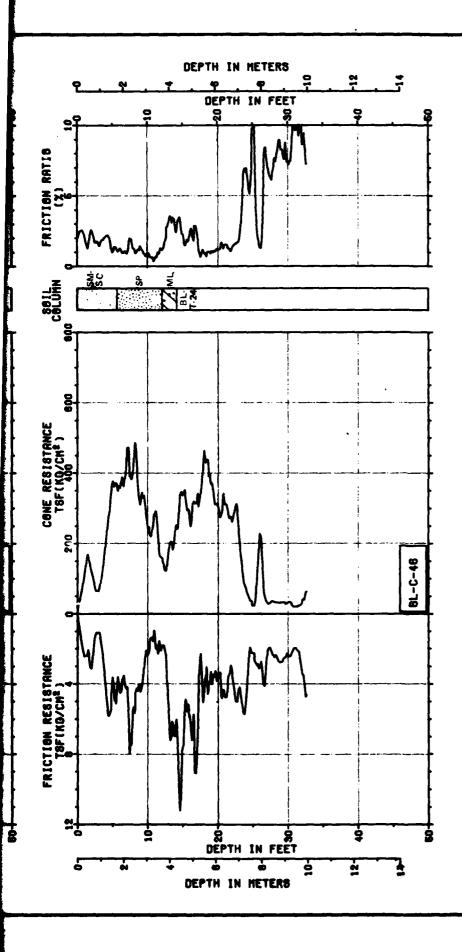
COME PENETROMETER TEST DINOIS, 48-6 46 OPERATIONAL RASE SITE MINDORS, UTAS

MX SITING INVESTIGATION

FIGURE



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CONE PENETROMETER TEST BL:C-45 & 46
OPERATIONAL BASE SITE
MILFORD, UTAH

MX SITING INVESTIGATION

DEPARTMENT OF THE AIR FORCE — BMO

II-6-1 25 OF 25

UGRO NATIONAL, INC

SECTION 7.0

EXPLANATION OF SEISMIC REFRACTION DATA

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### 7.0 EXPLANATION OF SEISMIC-REFRACTION DATA

Each figure shows seismic wave travel times plotted versus surface distance between the energy source (shot) and the detector (geophone) for a single seismic line. Distances are measured along the line from geophone number 1 which is designated as zero distance. Distances to the right (on the paper) of geophone 1 are positive. The direction arrow gives the approximate direction along the geophone array from geophone 1 to geophone 24.

## Travel Time Versus Distance Graph (Upper Half of Figure)

This is a travel time versus distance graph. The abscissa represents distance; the ordinate, time. The six vertical lines represent the locations of shots (designated as F, G, H, I, J, and K). The symbol, X, denotes travel times at geophones that were located to the right of a shot. The symbol, Q, denotes travel times that were located to the left of shots.

## Velocity Cross Section (Lower Half of Figure)

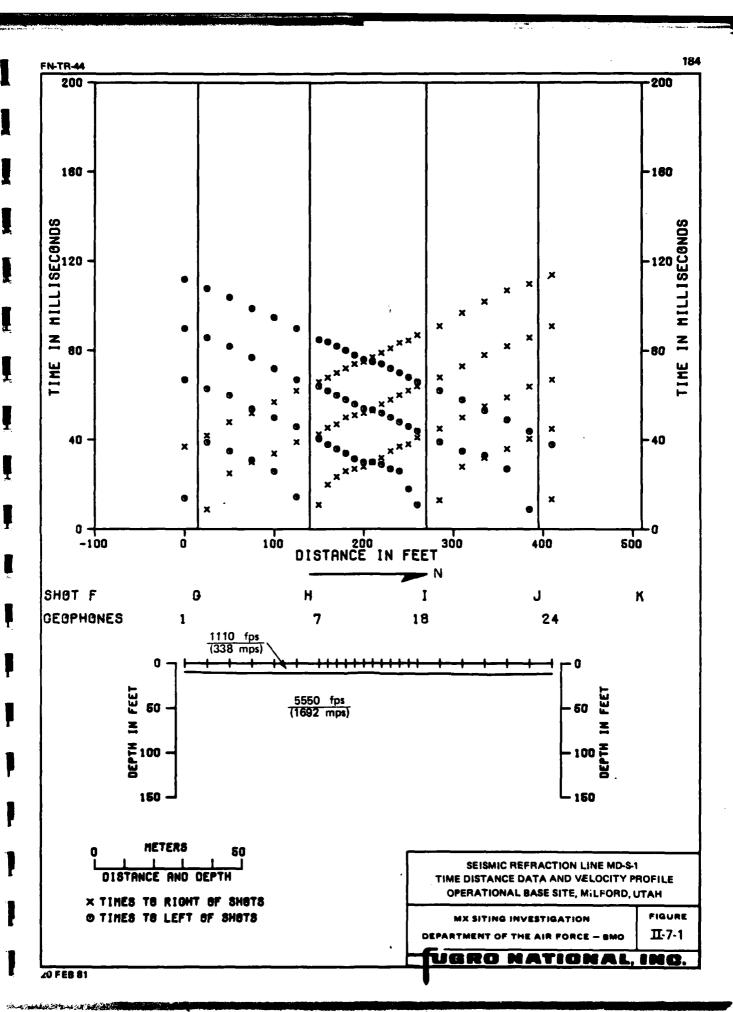
This is an interpreted velocity cross section beneath the seismic line. The top line represents the ground-surface profile. The short vertical lines crossing the top line mark the geophone positions. The depth scale is plotted relative to a point on the line which was arbitrarily chosen as "zero elevation" at the time the line was surveyed. The additional lines across the cross section represent the interpreted boundaries between layers of material with different compressional wave

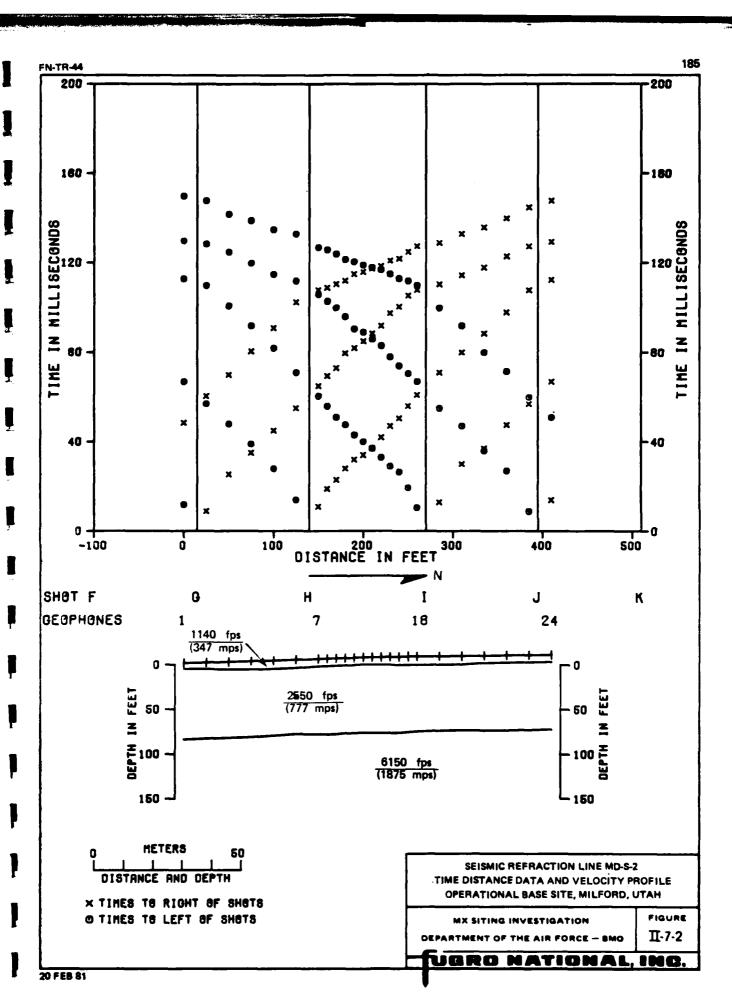
**FUERO** MATIONAL MIO.

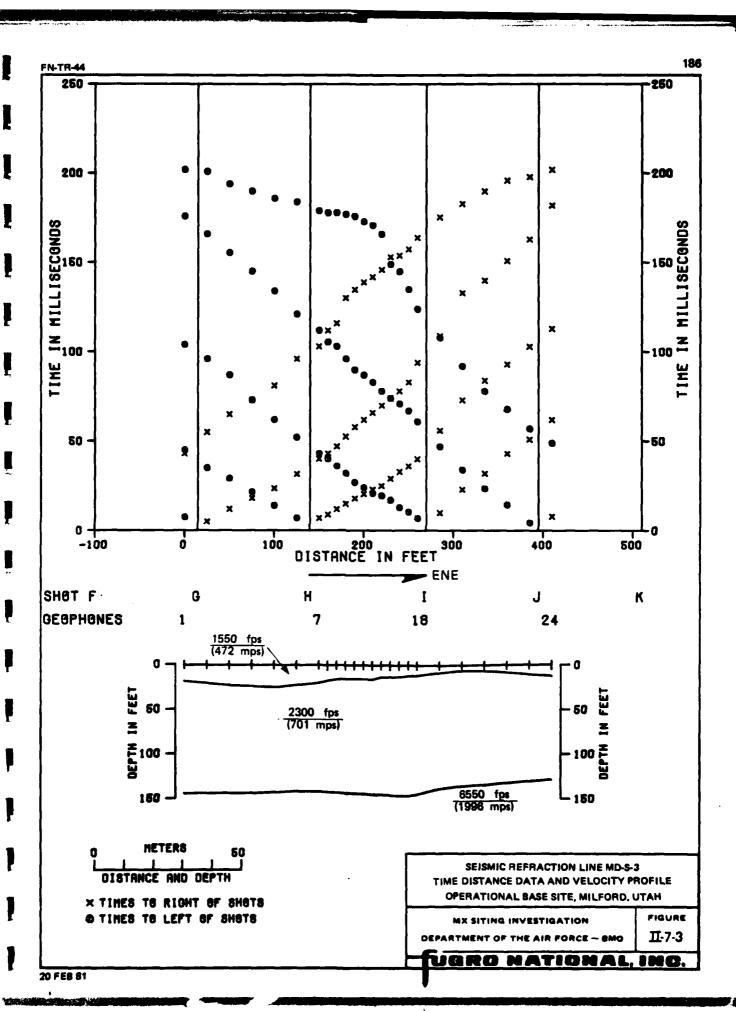
The state of the s

velocities. These boundaries are commonly called "refractors." The velocity interpreted to be representative of each layer is shown.

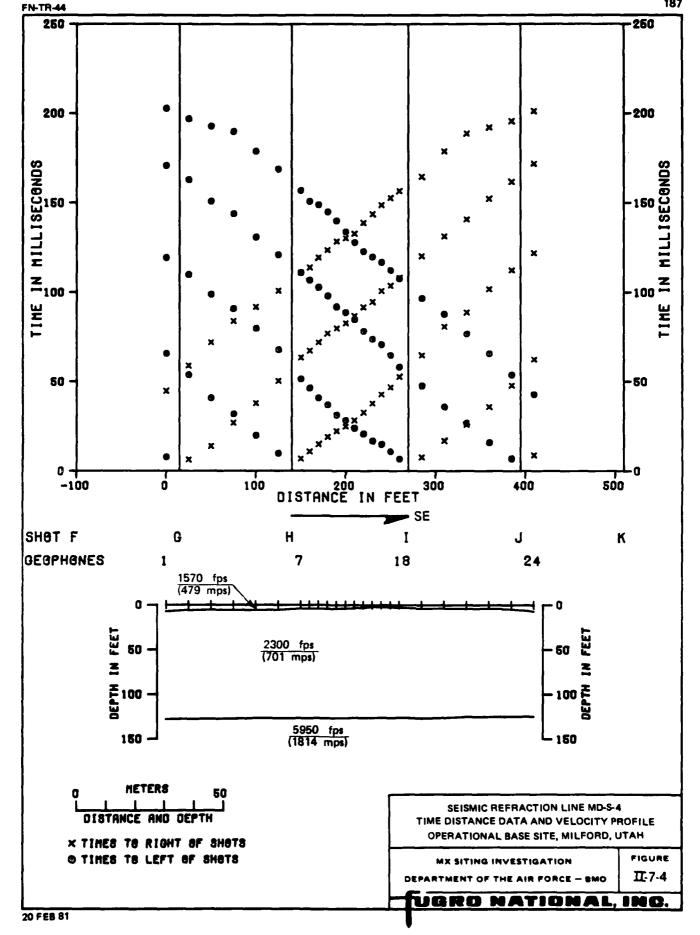
NOTE: There were no seismic refraction lines at locations MD-SR-10 or MD-SR-11.

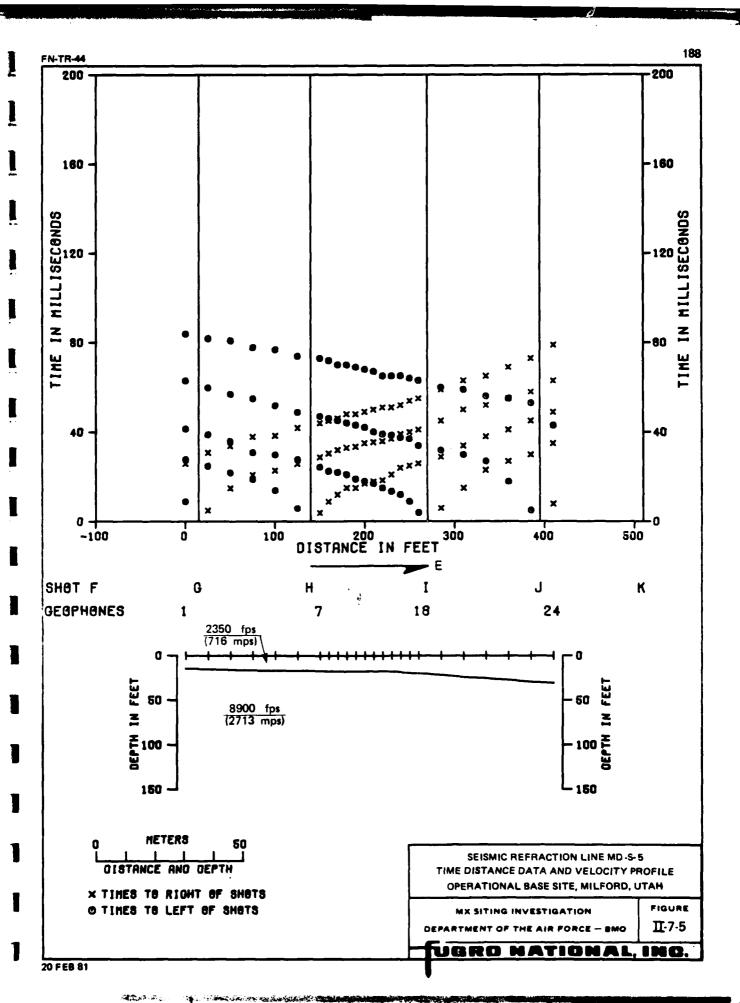


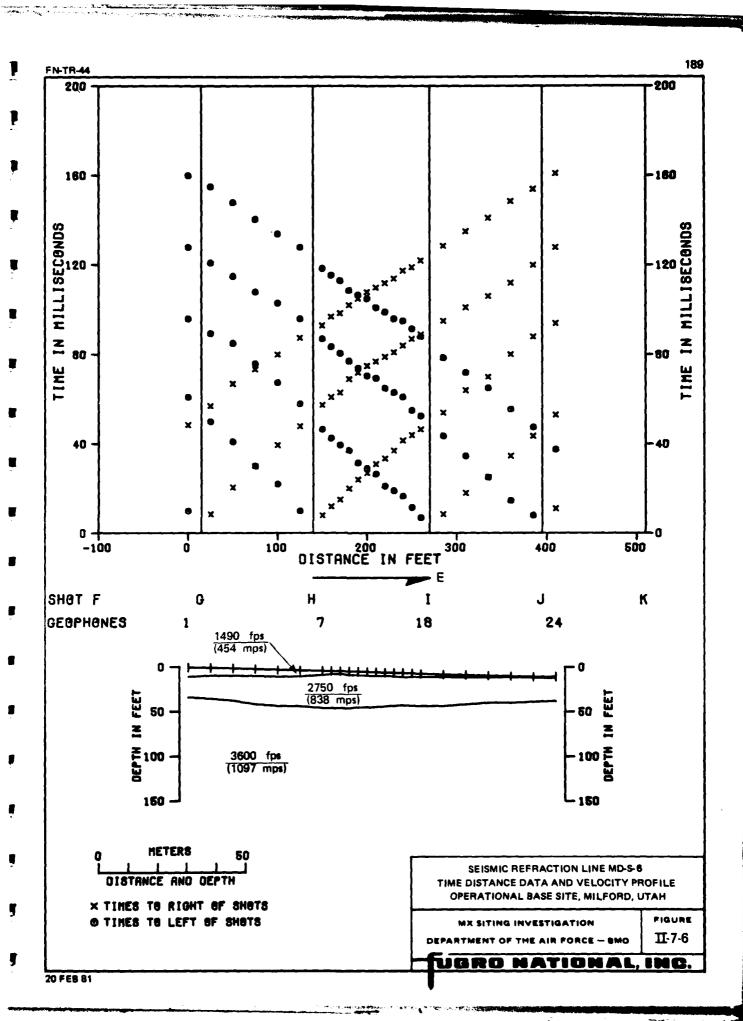


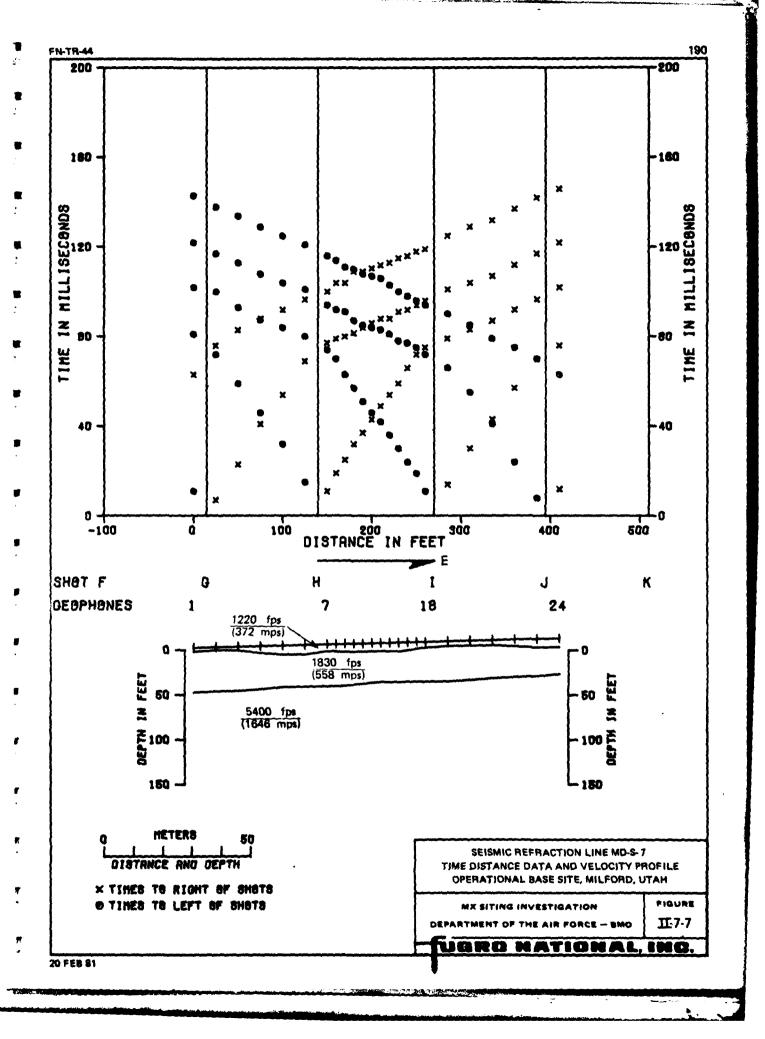


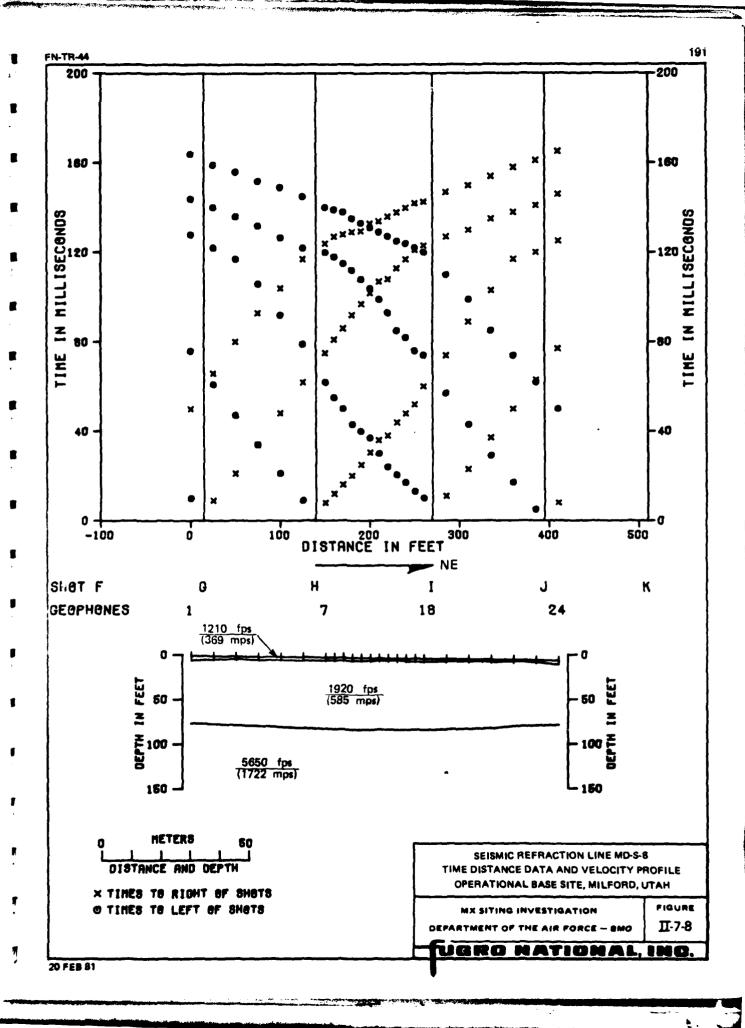


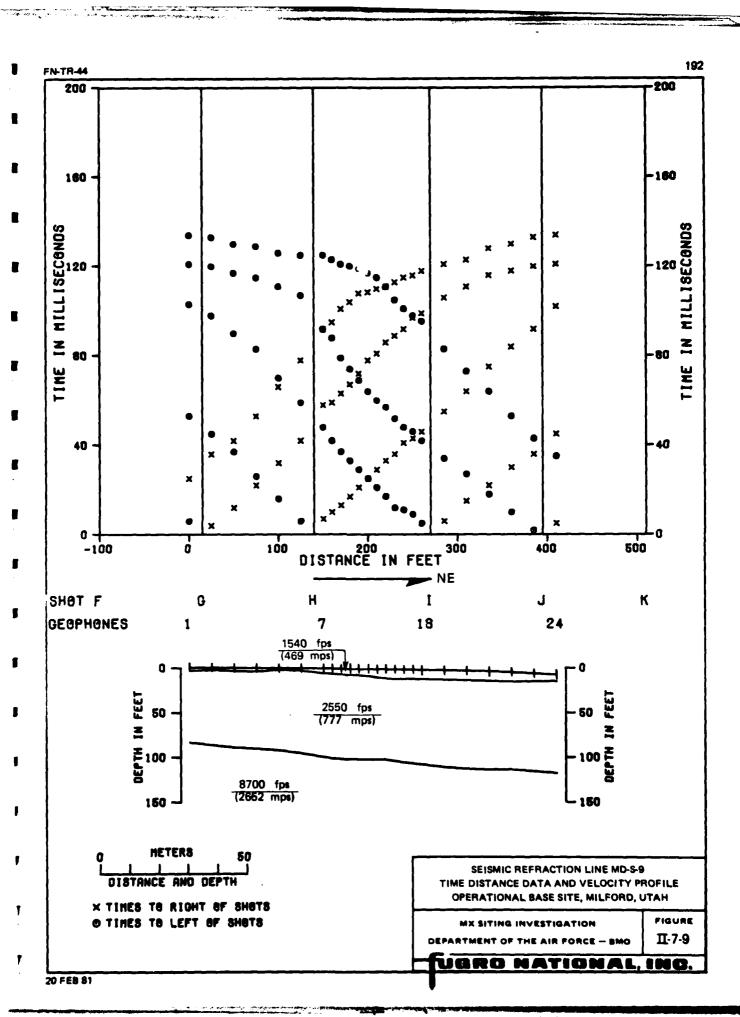




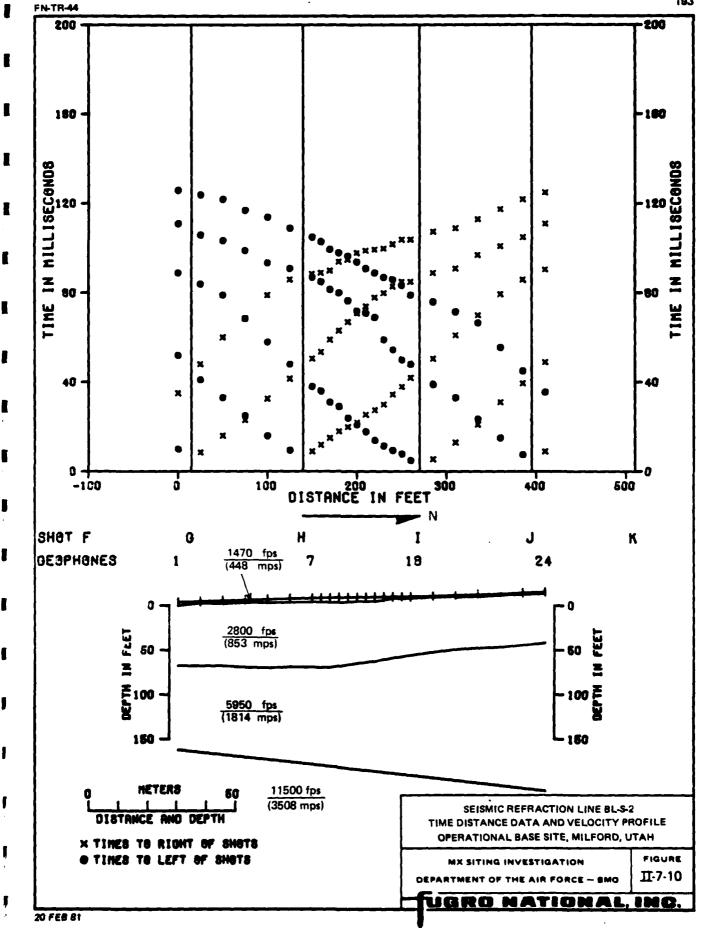




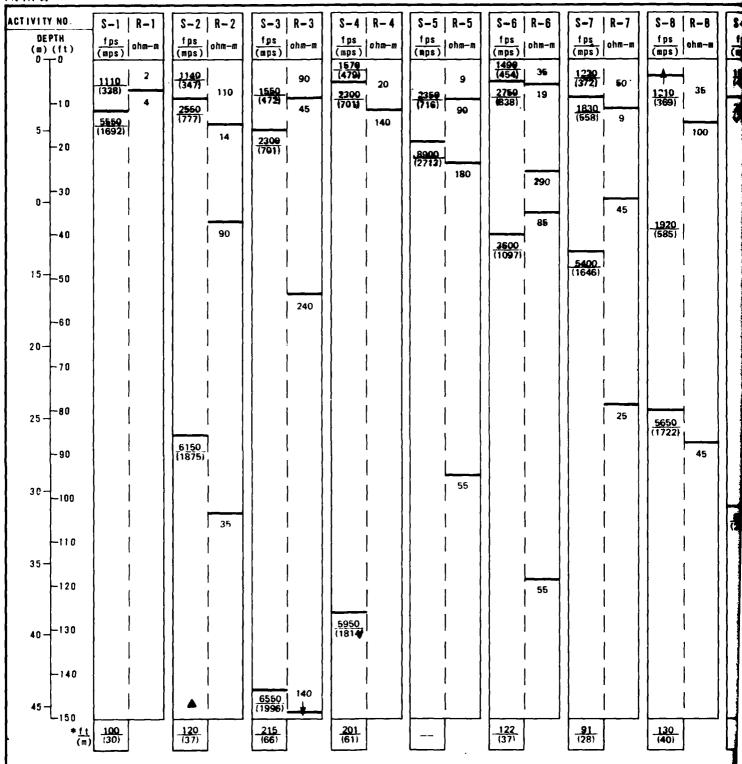








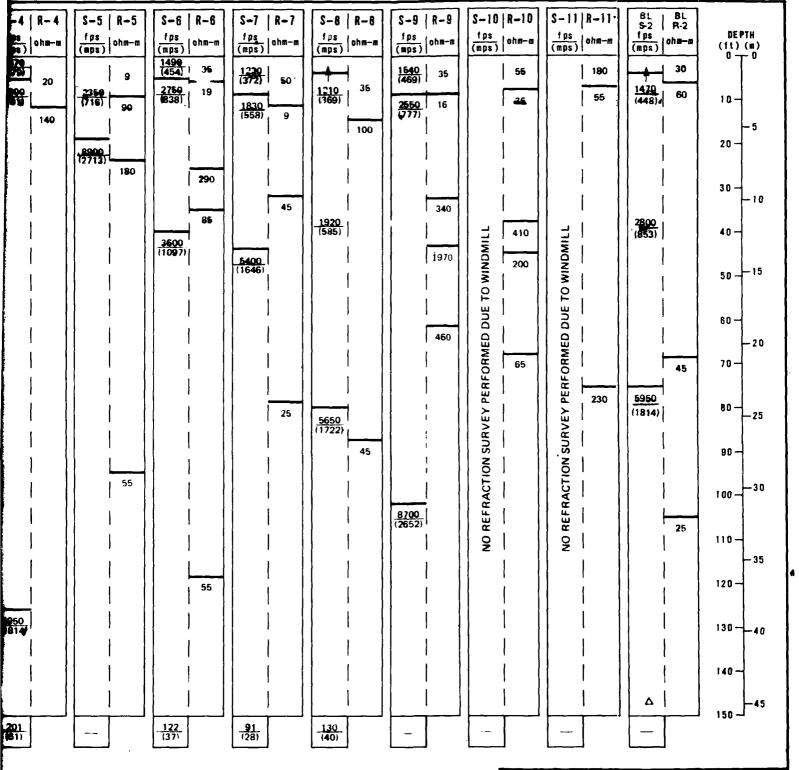
FN-TR-44 BL BL S-2 R-2 fps John-n S-10 | R-10 S-11 | R-11 ACTIVIT (mps) ohm-m DEPTH fps (mps) ohm-m ohm-m (11) (m) 0 - 0 (mps) 30 180 55 1470 (448) 60 55 25 10 5 20 30 -10 Q. 2800 (853) 410 40 PERFORMED DUE TO WINDMILL REFRACTION SURVEY PERFORMED DUE TO WINDMILL 200 15 - 15 50 60 - 20 20 65 70 45 5950 230 80 REFRACTION SURVEY (1814) - 25 25 90--30 30 100 -25 8 110-- 35 35 120 130 -40 40 140 Δ 45 150 SHALLOW SEISMIC REFRACTION VELOCITY PROFILE OPERATIONAL BASE SITE MILFORD, UTAH TABLE MX SITING INVESTIGATION II-7-1 DEPARTMENT OF THE AIR FORCE BMG



\* Approximate depth above which there is no indication of material with a velocity as great as 7000 fps (2134 mps). See Appendix A fer an explanation of how this exclusion depth is calculated when the observed velocities are all less then 7000 fps (2134 mps).

• 177 ft (3490) (54 m)

177 ft. (54 m) 11500 (3505)



Indication of material 34 mps). See Appendix A depth is calculated a then 7000 fps (2134 mps), ▲ 11450 (\*\* 177 ti (3490) (\*\* (54 m))

 $\Delta = \frac{11500}{(3505)} = \frac{177 \text{ ft}}{(54 \text{ m})}$ 

SHALLOW SEISMIC REFRACTION VELOCITY PROFILE OPERATIONAL BASE SITE MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE DOGS

TABLE 11.7.1

UGRO NATIONAL INC.

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SECTION 8.0

EXPLANATION OF ELECTRICAL RESISTIVITY DATA

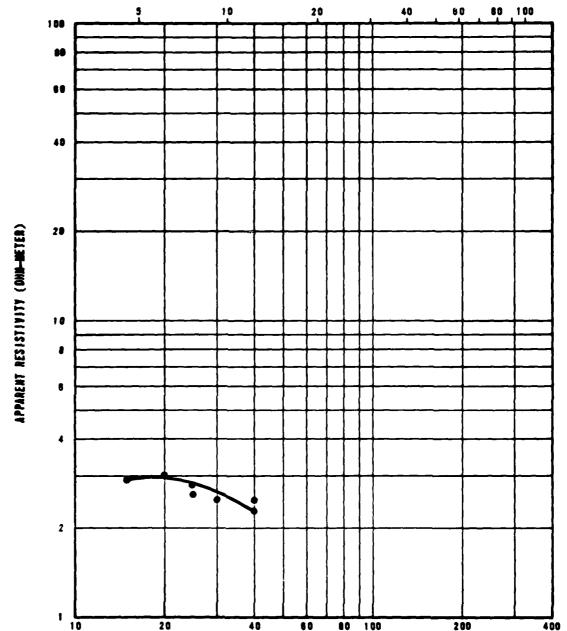
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# 8.0 EXPLANATION OF ELECTRICAL RESISTIVITY DATA

Each figure in this section presents the data obtained from a resistivity sounding and a tabulated model of resistivity layers that would produce a curve similar to the observed curve. The upper portion of the figures is a graph in which measured apparent resistivity values in ohm-meters are plotted versus one-half the distance between the current electrodes.

The interpreted model tabulated at the bottom of the figures shows a combination of true resistivity layers and thicknesses obtained by matching theoretical curves to the field curve.





ELECTRODE SPACING - AB/2
(FEET)

INTERPRETED MODEL

LAYER DEPTH RESISTIVITY VALUES
FEET METERS OHM-METER

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6 2 4

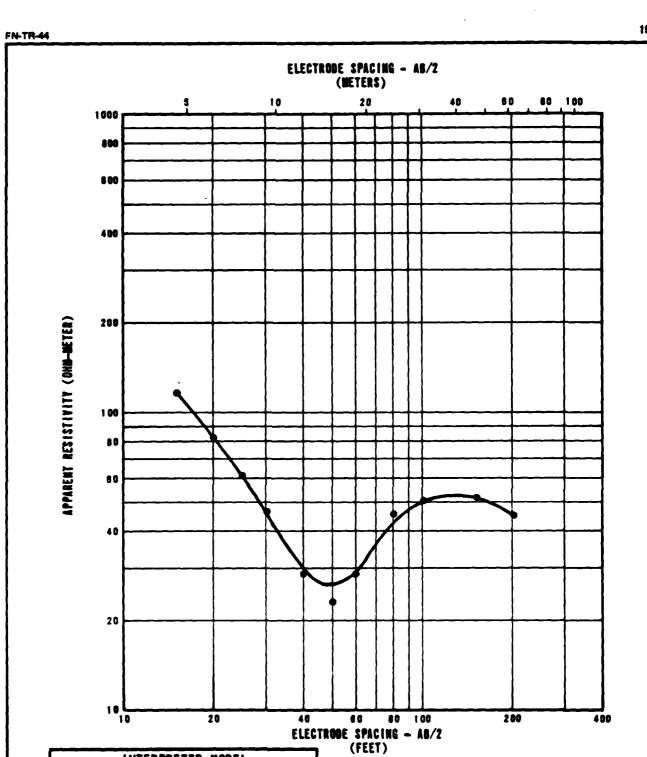
RESISTIVITY SOUNDING MD-R-1 SOUNDING CURVE AND INTERPRETATION OPERATIONAL BASE SITE, MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - SWO

F1 &URE II-8-1

**VORO MATIONAL INC.** 

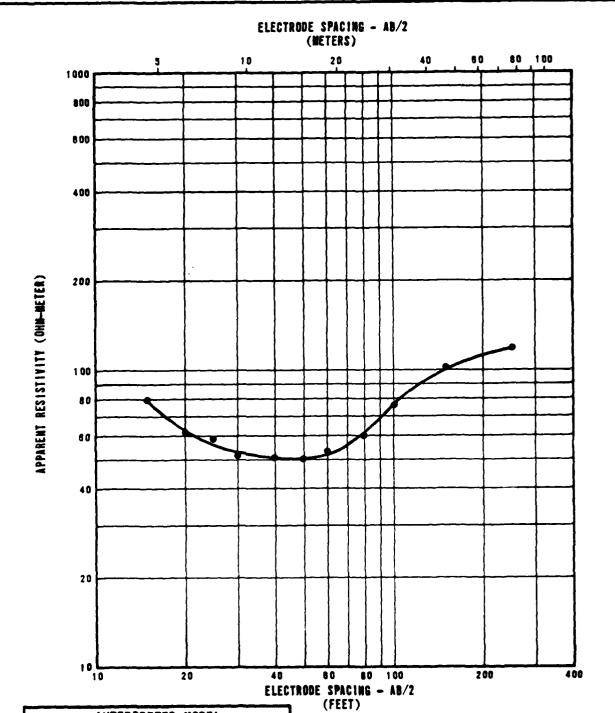




INTERPRETED MODEL				
LAYER DEPTH		RESISTIVITY VALUES		
FEET	METERS	OHM-METER		
0	0	110		
15	5	14		
37	11	90		
103	31	35		
		]		

RESISTIVITY SOUNDING MD-R-2 SOUNDING CURVE AND INTERPRETATION OPERATIONAL BASE SITE, MILFORD, UTAH

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - BMG FISURE II-8-2



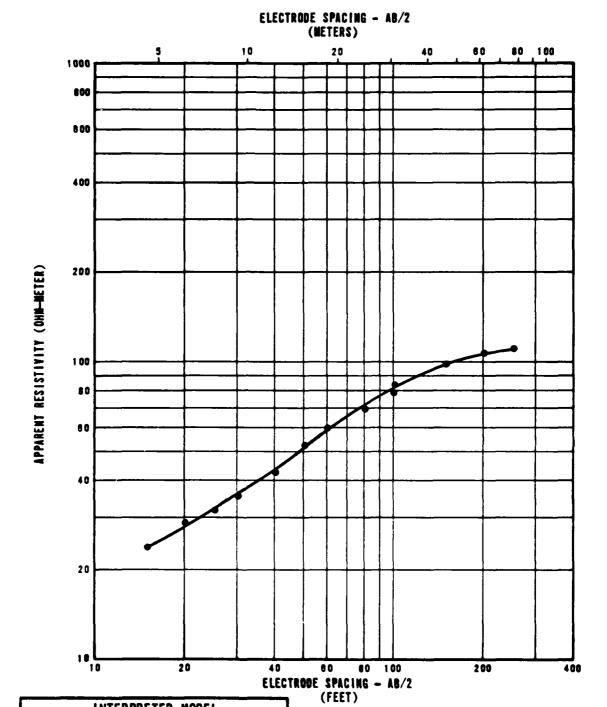
INTERPRETED MODEL				
LAYER DEPTH		RESISTIVITY VALUES		
FEET	METERS	OHM-METER		
Q	0	90		
8	2	45		
54	16	240		
149	45	140		
	1	1		

RESISTIVITY SOUNDING MD-R- 3
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE, MILFORD, UTAM

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

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UBRO NATIONAL INC.

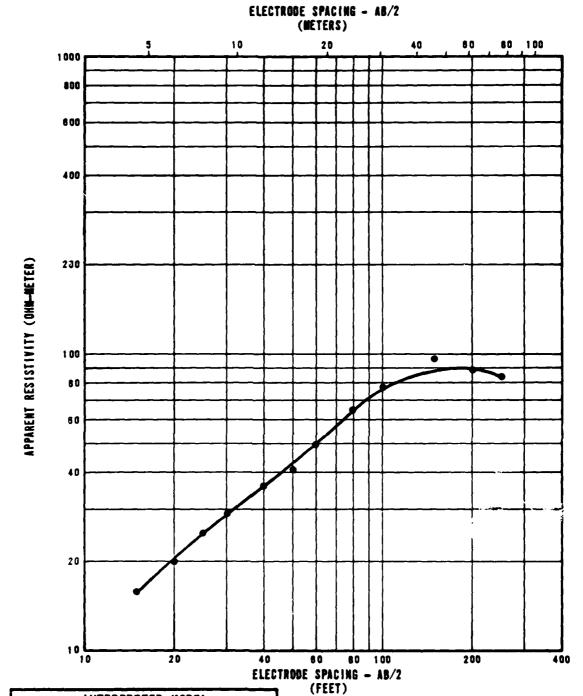


INTERPRETED MODEL				
LAYER DEPTH		RESISTIVITY VALUES		
FEET	METERS	OHM-METER		
0	0	20		
12	4	140		
	<u> </u>			
	T			

RESISTIVITY SOUNDING MD-R-4
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE, MILFORD, UTAM

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

FIGURE II-8-4



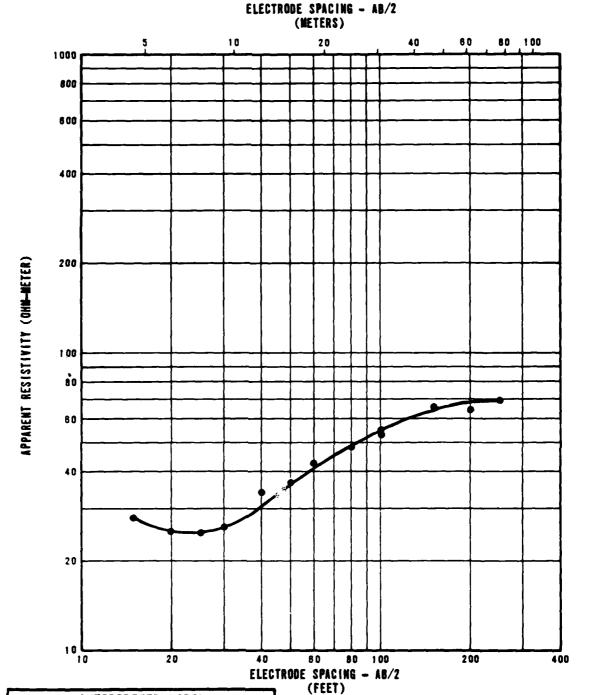
INTERPRETED MODEL				
LAYER	DEPTH	RESISTIVITY VALUES		
FEET	METERS	OHM-METER		
0	0	9		
8	2	90		
24	7	180		
96	29	56		
		]		

RESISTIVITY SOUNDING MD-R-5 SOUNDING CURVE AND INTERPRETATION OPERATIONAL BASE SITE, MILFORD, UTAH

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T-8-5

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	INTERPRETED MODEL				
LAYE	DEPTH	RESISTIVITY VALUES			
FEET	METERS	OHM-METER			
0	0	36			
5	2	19			
25	8	290			
35	11	85			
119	36	55			

RESISTIVITY SOUNDING MD-R-6 SOUNDING CURVE AND INTERPRETATION OPERATIONAL BASE SITE, MILFORD, UTAH

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DEPARTMENT OF THE AIR FORCE - 800

II-8-6

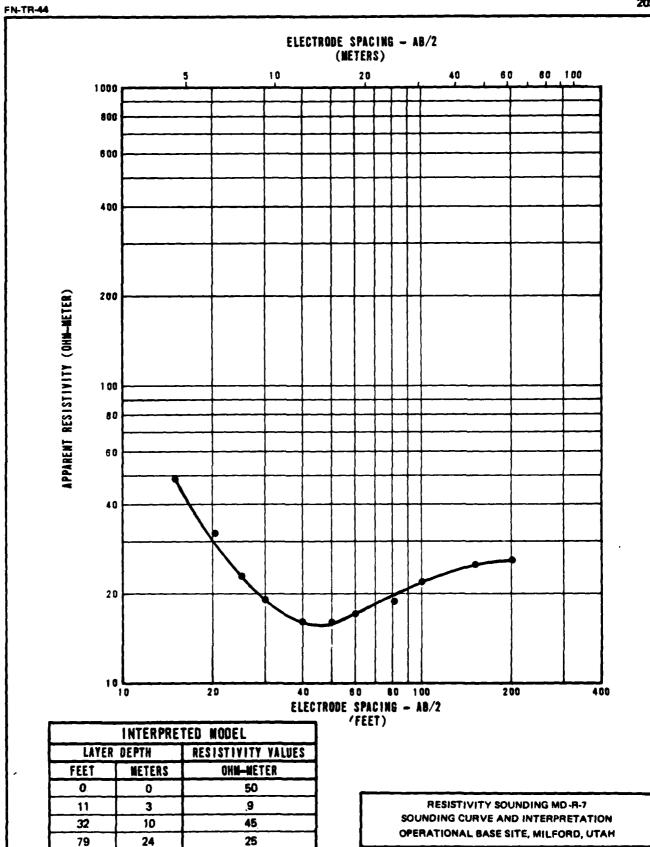
20 PEB 81



FIGURE

**II-8-7** 

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - DMG



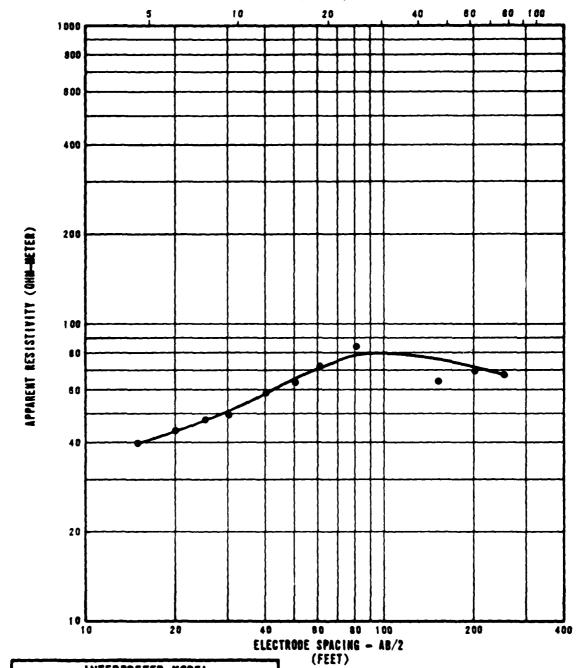
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	INTERPRETED MODEL			
LAYE	DEPTH	RESISTIVITY VALUES		
FEET	METERS	OHN-METER		
0	0	35		
13	4	100,		
88	27	45		
	I			

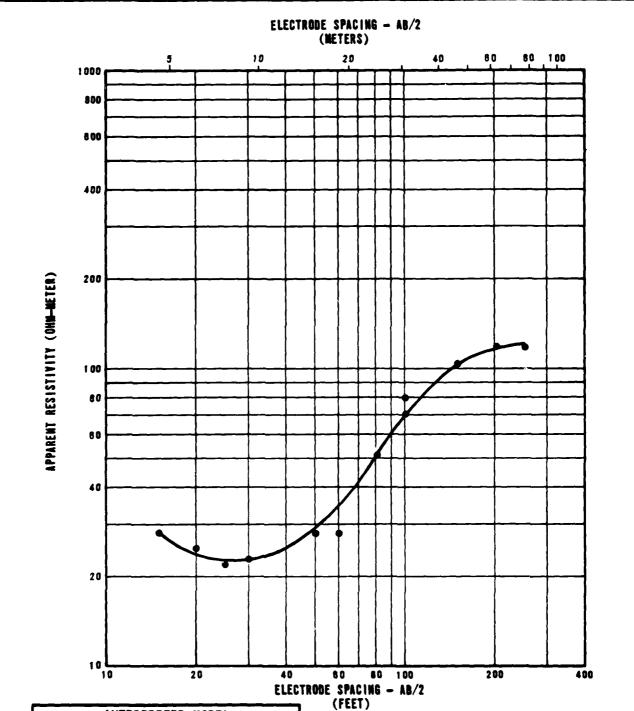
RESISTIVITY SOUNDING MD -R- 8
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE, MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - SUG

II-8-8

UGRO NATIONAL INC.

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INTERPRETED MODEL			
LAYER DEPTH		RESISTIVITY VALUES	
FEET	METERS	OHM-METER	
0	0	35	
9	3	16	
32	10	340	
43	13	1970	
61	19	460	
	1	1	

RESISTIVITY SOUNDING MD-R-9
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE, MILFORD, UTAH

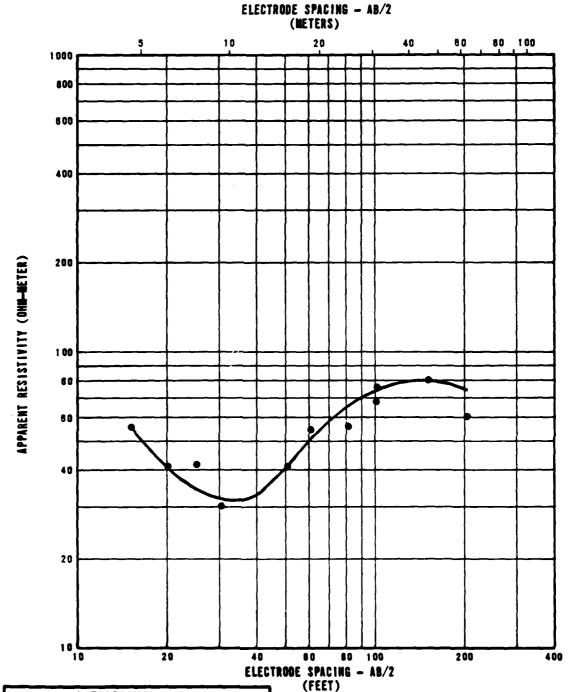
MX SITING INVESTIGATION

DEPARTMENT OF THE AIR FORCE - DMO

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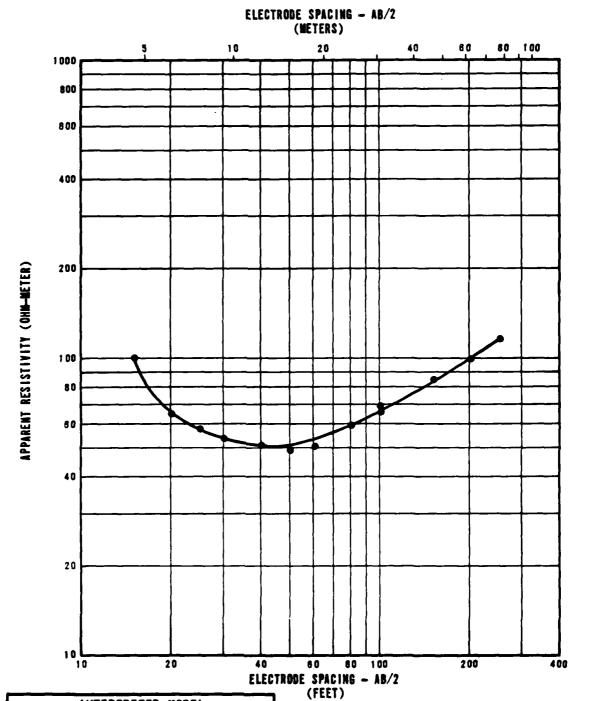
	INTERPRETED MODEL				
LAYE	R DEPTH	RESISTIVITY VALUES			
FEET	METERS	OHM-METER			
0	0	55			
8	2	35			
38	12	410			
44	13	200			
68	21	65			

RESISTIVITY SOUNDING MD -R-10
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE, MILFORD, UTAH

MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - DMG

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UGRO NATIONAL INC.



	INTERPRETED MODEL				
LAYE	R DEPTH	RESISTIVITY VALUES			
FEET	METERS	OHM-METER			
0	0	180			
7	2	55			
77	23	230			
	I	1			

RESISTIVITY SOUNDING MD-R-11
SOUNDING CURVE AND INTERPRETATION
OPERATIONAL BASE SITE, MILFORD, UTAH

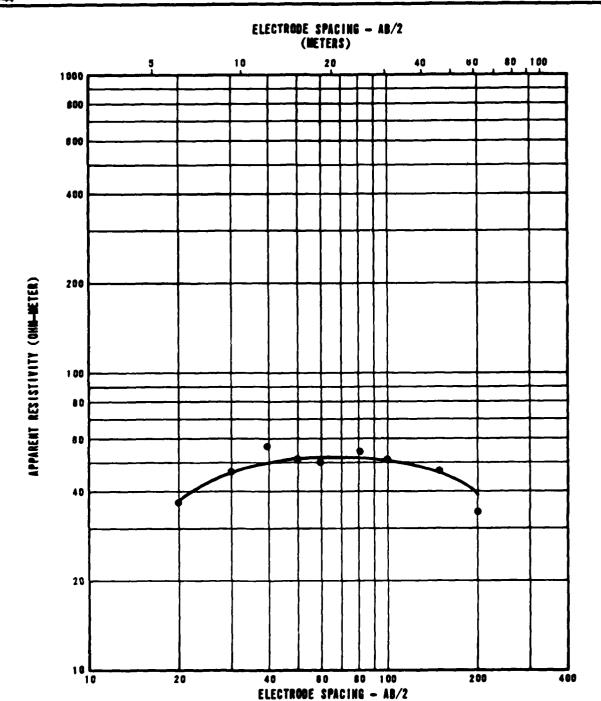
MX SITING INVESTIGATION
DEPARTMENT OF THE AIR FORCE - 800

F1808E II-8-11

**UGRO NATIONAL INC.** 

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(FEET)

	INTERPRETED MODEL				
LAYE	RDEPTH	RESISTIVITY VALUES			
FEET	METERS	OHM-METER			
0	0	30			
6	2	60			
68	21	45			
104	32	25			
	1				

RESISTIVITY SOUNDING BL-R-2 SOUNDING CURVE AND INTERPRETATION OPERATIONAL BASE SITE, MILFORD, UTAM

MX SITING INVESTIGATION DEPARTMENT OF THE AIR FORCE - 900

F1404E II-8-12

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